CALIFORNIA
OIL WORLD

PUBLISHED TWICE A MONTH
FOR TIMELY, COMPLETE
CALIFORNIA OIL NEWS COVERAGE

• FIRST ISSUE
AUGUST, 1946
VOL. 39 • NO. 15
WHOLE NO. 1709

PETROLEUM PUBLISHERS, INC.
MEMBER AUDIT BUREAU OF CIRCULATIONS
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New York Office: 17 E. 48th St., New York 17, N. Y.— Telephone: Wickersham 2-1127 — John H. Kunkel, Manager

California Oil World is published twice a month at 117 West 9th St., Los Angeles 15, California. Entered as Second-Class Matter, April 29th, 1944, at the post office at Los Angeles, California, under the Act of March 3, 1879. Subscription price $1 per year in U. S. and possessions, $2 in foreign countries including Canada. Member of the Audit Bureau of Circulations.

August 15th, 1946
Telephone Number TUcker 2571

Washington Highlights

House approval of the President's veto of the tidelands quitclaim bill marked one of the final acts of the 79th Congress before adjournment. The vote was 139 for overriding and 95 against, or 17 ballots short of the two-thirds majority required to enact the measure into law over the President's objections.

California representatives voted this way: Democrats for overriding the veta—Doyle, Eagle, Havenner, King, Lea and Sheppard. Republicans for overriding the veto—Gearhart, McDonough, Phillips. Democrats against overriding the veto — Helen Gahagan Douglas, Healey and Voorhis. Republicans against overriding veto—none.

The House previously adopted the legislation by 188 to 67 vote, which was more than two-thirds. Even though the House had overridder the Chief Executive, there was some doubt as to whether a two-thirds majority could have been lined up in the Senate. The Senate passed the measure 44 to 34.

In vetoing the bill, which had he signed it, would have quieted the title of States to lands between the low-tide mark and three-mile limit, President Truman asserted that the question whether the nation or the States own these lands should be decided by the Supreme Court, not by Congress.

"The ownership of the vast quantity of oil in such areas presents a vital problem for the nation from the standpoint of national defense and conservation," Mr. Truman said.

"If the United States owns these areas, they should not be given away. If the Supreme Court decides that the United States has no title to or an interest in the lands, a quitclaim from the Congress is unnecessary.

Proponents of the tideland quitclaim measure, however, were quick to point out that the decision of the high court will apply only to a particular tract of land in California involved in the suit. Without enactment into law of the quitclaim bill, the United States may bring suit to other land, whenever struck by the notion, since the statute of limitations does not effect the Government.

Not until the Congressional session starting next January, can the bill be reenacted. The veto, which annulled legislation backed by 46 states, had the support of Secretary of Interior Krug. He said it is a matter of the Courts rather than Congress to decide.

The veto was protested by the Oil Producers Agency of California, which sent telegrams to all California Congressmen.

"A boundary dispute between sovereignities is not a legal matter but one of policy, and Congress, not the Executive, is the policy-making body in our Government," the wire stated.

Signed by W. C. Whaley, agency president, the telegram called upon California Representatives and Senators to "do your state and your country an outstanding service by reaffirming the principle that Congress is our policy-making body."

Judge Goodwin Knight, Republican candidate for Lieutenant Governor of California, added his criticism to the veto. He was quoted in the nation's capitol as saying, "Californians of all political faiths regret the action of the President in vetoing the bill passed by Congress which would have given the states clear title to tideland areas."

Not overlooked by Washington observers was the possibility of the veto costing the United States the Aleutians to Russia and such islands as Catalina to Mexico. None of those islands were mentioned in the agreements which brought Alaska into the American Union from Russia and California into the Union from Mexico. American right to the islands has been established only by long occupation, just as state rights to submerged and reclaimed lands traditionally has been considered the property of the states, communications reaching the office of Sheridan Downey, California Democrat, and others members of Congress, pointed out.

Reconversion Director John R. Steelman directed payment of subsidies for crude oil produced by stripper wells during July, notwithstanding the lapse of authority for such action from July 1 to 25. He ordered payments made at the rates in effect on June 20, when the program entered the death and revival interval of the OPA program. He also instructed the Reconstruction Finance Corp. and the OPA to develop jointly a program for payments for August and months

(Continued on Page 32)

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The San Juan Oil Field of Southeastern Utah, Lies to Northwest of San Juan Basin Field of Northwestern New Mexico

First Discovery of "Seeps" of Oil in 1882 by E. L. Goodrich, Led to Exploration and Small Production

By RAY E. COLTON, Sc. D.
Petroleum Geologist

The existence of petroleum "seeps" in the San Juan Canyon of San Juan County, Utah, was discovered in 1882 by the late E. L. Goodrich of Bluff, Utah, and the first location for a test well was made by the San Juan Oil Co.mpany, of which Mr. Goodrich was an organizer, was made in that year. After a hazardous trip through the San Juan and Colorado River canyons from Bluff, Utah, to Lee's Ferry with the loss of one boat, Mr. Goodrich and a Mr. A. L. Raplee of Bluff, Utah, succeeded in landing and made a location for the drilling of Crossing Number 1. It was not until 1907 however, when the well was drilled, and oil was struck on March 4, 1908. From that date until the spring of 1909 development of the field was rapid, but in July, 1909, drilling was in progress at only one well in the entire San Juan field. On the whole from the viewpoint of petroleum engineering, the early drilling was not skillfully done, and it was reported that tools had been lost at nearly every one of the original wells drilled in the field in the early 1900's. The filing of claims kept way ahead of the actual development of the field, and at one time there were approximately 10,000 locations on record in the town of Monticello, Utah, county seat of San Juan County.

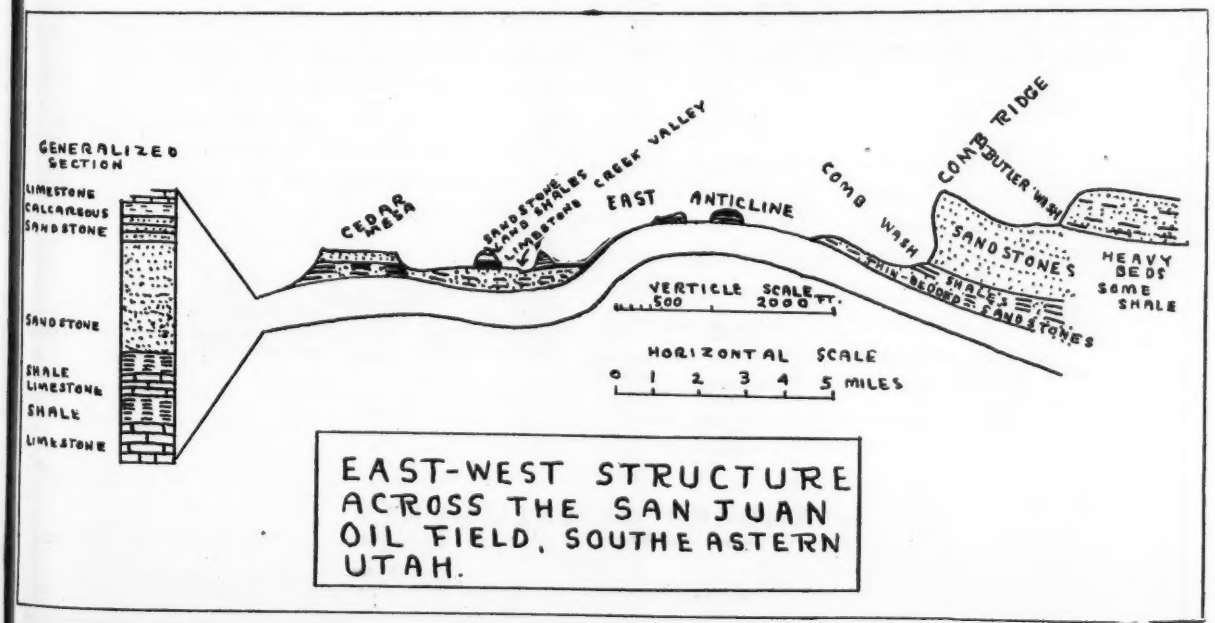
Location of the Field

Even at this writing, the approximate boundaries of the San Juan oil field have not been determined. The scene of the original development was along Limestone Creek, 25 miles west of the town of Bluff, Utah, and the claims originally staked by Mr. Goodrich, Mr. Raplee and their associates, included an oval area which has an ortheast-southwest axis of about 30 miles and a northwest-southeast axis of 20 miles and is divided into two (2) nearly equal parts by the canyon of the San Juan River.

Topography of the Area

The San Juan oil field is part of the Colorado Plateau, a physiographic province with altitudes ranging from 5,000 to 7,000 feet, and composed in the main, of flat-lying sedimentary rocks ranging in geologic age from Carboniferous to Cretaceous.

The river valleys of this area of southeastern Utah are canyons cut in solid rock. The elevations are either mesas and buttes remaining after the erosion of the surrounding areas or are volcanic necks and lava-capped mesas. Much bare rock is found to be exposed at the surface. The area included in the San Juan oil field has an altitude of 4,000 to 5,000 feet and differs in topography from the typical Colo-



EAST-WEST STRUCTURE ACROSS THE SAN JUAN OIL FIELD, SOUTHEASTERN UTAH.

Looking Around

By THE OBSERVER

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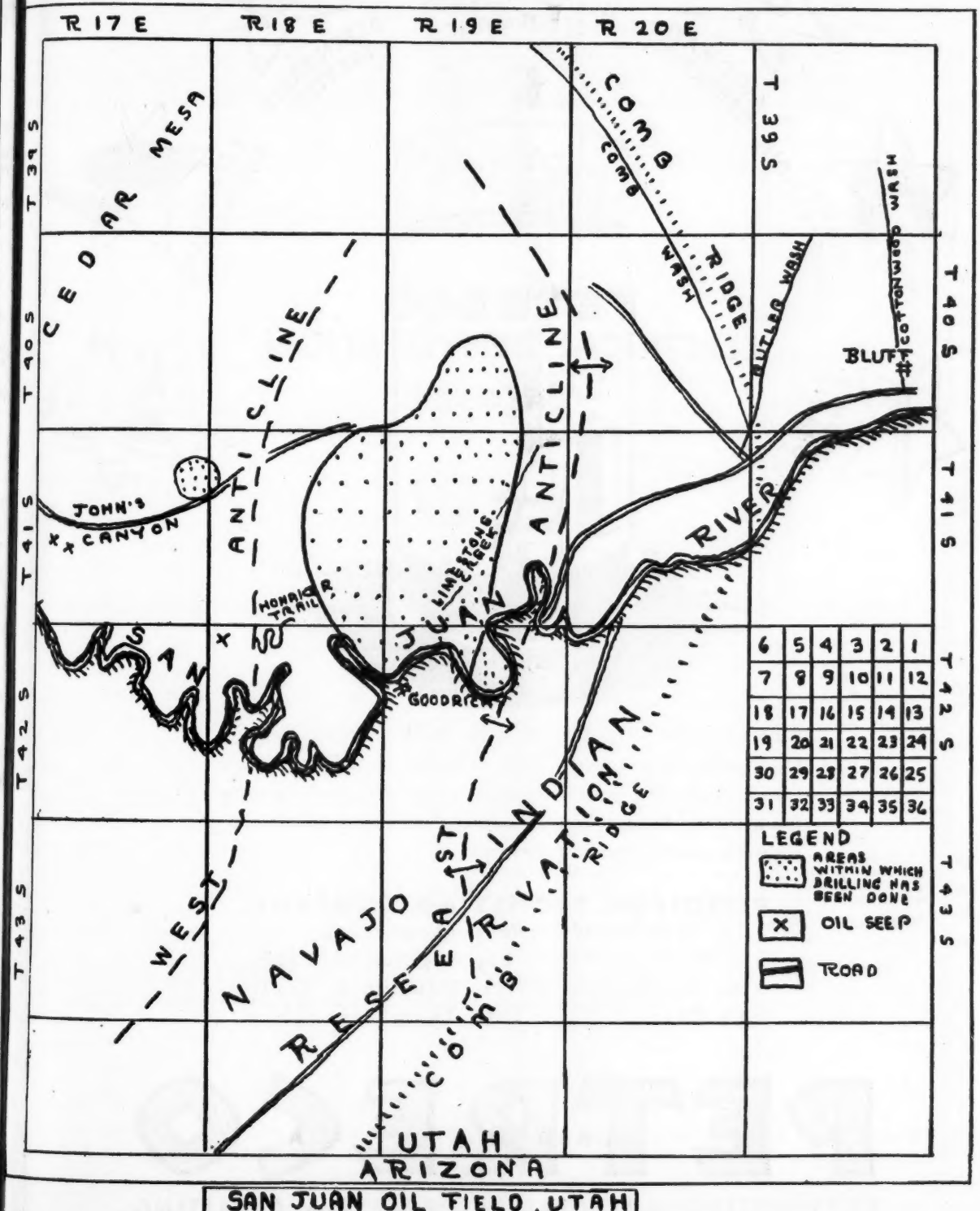
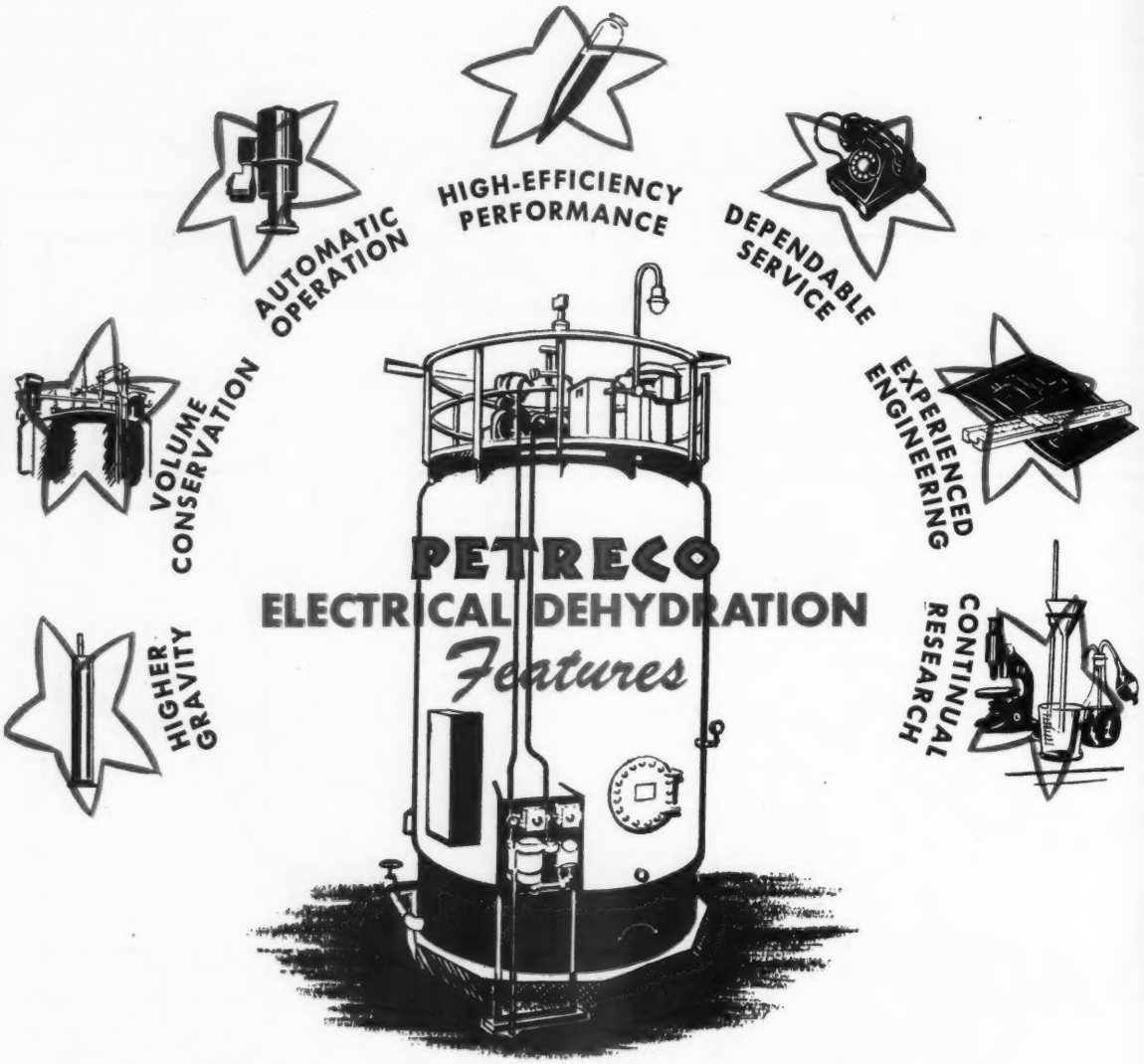
ado Plateau only in that the rocks re folded into well-marked syn-lines and anticlines.

The most important topographic eatures in that part of the oil field which lies north of San Juan river are East Anticline and Cedar Ridge. East Anticline is a fold 6 to 8 miles in width, on the west flank of which are upturned the red rocks of Limestone Valley on the west and the serrate hogback ("the Comb") on the east. Uneroded remnants of overlying rocks stand here and there above the exposed top of the



SAN JUAN OIL FIELD, UTAH



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field, but the general surface of the ground corresponds with the position and dip of the limestone cap.

Cedar Ridge is a broad ridge terminating on the south and east in precipitous cliffs 400 to 600 feet in height.

This ridge is the uneroded portion of West Anticline and stands fourteen miles northwest of East Anticline. At the base of Cedar Ridge and in the syncline drained by Limestone Creek, are many buttes and pinnacles of grotesque shape, 100 to 300 feet in height, cut from the red sandstone and shale overlying the limestone of East Anticline. South of the river East Anticline flattens and disappears and the continuation of Cedar Ridge is represented by pinnacles, monuments and fluted buttes, constituting one of the most remarkable groups of erosion forms to be found in the United States.

Geology: Structure of the Area

In the San Juan oil field of southeastern Utah, lying to the northwest of the San Juan Basin oil field of northwestern New Mexico and southwestern Colorado, flat-lying sedimentary rocks found, east, north, west and south are folded to form twin anticlines with a broad intervening syncline, a crumpling apparently unaccompanied by faulting. The rock systems which took part in the disturbance and which are now exposed by erosion, are the Carboniferous, Triassic and Jurassic. Approximately2,000 feet of sedimentary rocks above the fossil bearing Carboniferous are in sight. The hogback ridge which forms the east bank of Comb Wash and continues south and west along Gypsum Valley to the vicinity of Cha-ezkla-Rock appears to represent the steep downfolded eastern side of a dome or monocline which formerly extended westward toward the Colorado River. This giant dome has been modified by smaller folds, two of which, with axis trending N. 20 degrees East, and thus approximately parallel to the bordering hogback, constitute the fundamental structural features of the San Juan oil field of San Juan County, Utah. Nearly all of the wells drilled so far in the field are located along the syncline.

Stratigraphy

The rock walls bordering the San Juan River at Bluff, Utah, are assumed to be of Jurassic geologic age, the cliffs near the "Twins" being of local LaPlata sandstone and the McElmo formation appearing farther up the river. It is probable that the Dolores formation (Triassic) forms the base of the cliffs and is represented in a well section at Bluff. In the section at the Goodrich Bridge (Crossing Number 1) original well of the field drilled in 1907, and at Honaker Trail the upper Carboniferous (Pennsylvanian) is well exhibited and the strata in Cedar Ridge and in the valley of Limestone Creek are believed on the basis of field examination, to include the Permian and a large section of the Triassic.

The Oil Sands

Eight (8) distinct oil bearing sands are represented in the area. These sands are locally called by the Department of Geology, University of Utah, Salt Lake City, the Baby, Goodrich Number 3, Mendenhall, Amber, Goose Neck, Blue Shale, and Honaker sands.

At all places examined the rock containing the oil is practically identical in character at each producing horizon. It is a white sandstone, bleached, fine grained, friable, generally porous, contains calcareous cement, and weathers with concretionary structure. All of the strata beds are more or less fossiliferous and in places consist of solid masses of shell (Marine). The porosity of the oil recovered originally from the San Juan oil field, is apparently due to the removal of calcareous fossils. The rock overlying the Baby sand is a dark-blue, exceptionally durable limestone; that overlying the Goodrich sand is a fossiliferous, firm limestone, 3 feet in thickness.

One of the striking things of this region of southeastern Utah and adjoining areas of northeastern Arizona, is the relative indestructibility of these thin beds of limestone, so that the most widespread surface form, is a thin "cap rock" of limestone. This limestone cap has prevented the escape of the oil upward and has thus allowed it to accumulate in the porous sand.

Future Prospects of the Field

Twenty of the 25 wells originally drilled in the San Juan oil field were reported to have struck oil, and that the oil was encountered in each well wherever the oil sands were penetrated, and that the three lowest were never tested by the drill. One of these three, the Honaker sand, is marked in the canyon wall by a very prominent oil seep. Late examination of the area by the writer, indicates that oil of good quality is undoubtedly present in commercial amounts at each of the seven (7) horizons.

The map accompanying this article of the original field indicating the existing wells shows that the development was originaly confined chiefly to the valley of Limestone Creek and that no drilling was ever done south of San Juan River. This area was believed chosen by Mr. Goodrich and his associates of the old San Juan Oil Company, because wells could be sunk here to the lower oil sands at less expense than elsewhere in the field.

But even in this area, no well was ever sunk deep enough to constitute a thorough test of the lowest potential oil bearing sand. The wells already sunk have given valuable geologic data, regarding the conditions in the upper oil sands. In making plans for future development of this long forgotten oil producing area, and some activity is now in evidence, it should be noted that the deep-cut canyon of the San Juan River may have drained some of the unrecovered oil from the field. This consideration, taken in connection with the information afforded by the wells originally drilled in the field, indicates that there is little probability of finding gushers or wells of phenomenal yield. It seems reasonable to predict, however, that wells drilled in the future in this area of southeastern Utah, offer a good chance of commercial "pay."

Analysis of Original Oil

The analysis of the oil originally recovered in 1908 in the San Juan oil field was made by a Mr. F. E. Knoch, chemist for the United Oil Company of Florence, Colo., and it was taken from a sample of the oil recovered from the Bryce Well

(Continued on Page 32)

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2. Most people think grease is just grease—a very uncomplicated product. But different types have quite different characteristics. Calcium base greases resist water but melt down under heat. Sodium base greases resist heat but are not waterproof. Aluminum base greases have a tendency to jell under high temperatures.

3. Before the discovery of Unoba, however, these three types were the only greases in general use. Consequently you had to select the type to combat the conditions under which your equipment worked. This was satisfactory in most cases. But some equipment—such as mining machinery—had to operate in heat *and* water both.

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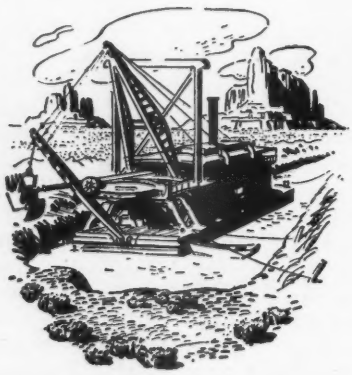

5. The result was Unoba—a *barium* base grease that would resist *heat*, resist *water*, maintain *high stability* and retard *rusting*. Unoba solved those tough lube problems in mines, dredging operations, packing plants, steel mills, etc.; made it possible to lubricate a car with 1 grease instead of 5; became the first real *all-purpose* grease in the industry.

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AMERICA'S *FIFTH* FREEDOM IS FREE ENTERPRISE

Earnings--A Function of Catalyst Activity

By
R. E. BLAND and E. A. SMITH
Houdry Process Corp.

An economic study is presented in this paper showing the relation between earnings and catalyst activity in a T.C.C. catalytic cracking unit. Clay catalyst was used for the study since commercial operation for the greatest number of years has been with catalyst of this type and considerable data have been collected showing the relation between equilibrium catalyst activity and catalyst replacement rate. Further, an accurate correlation of cracking variables, based on pilot plant data, was available which could be used to show the effect of incremental change of clay catalyst activity on product distribution. It is believed that the general conclusions reached will apply in a relative manner to other catalysts with the final choice of catalyst type being dictated by economics.

From the present economic study it is concluded that maximum earnings are realized from a T.C.C. commercial plant when the clay catalyst replacement rate is in the range of 0.5# to 1.0# per barrel of feed stock. This corresponds to an equilibrium catalyst activity range of 30-32 A.I.

It should be mentioned at this point that activity index is determined by a standard method designated as CAT-A which was adopted in its present form in 1944. The activity index is a measure of gasoline produced when cracking a specification light East Texas gas oil under a set of fixed operating conditions in laboratory scale equipment of standard design. A detailed description of the method has been described in the literature by Alexander and Shimp.[1] This method is employed by all operators of Houdry and T.C.C. catalytic cracking processes.

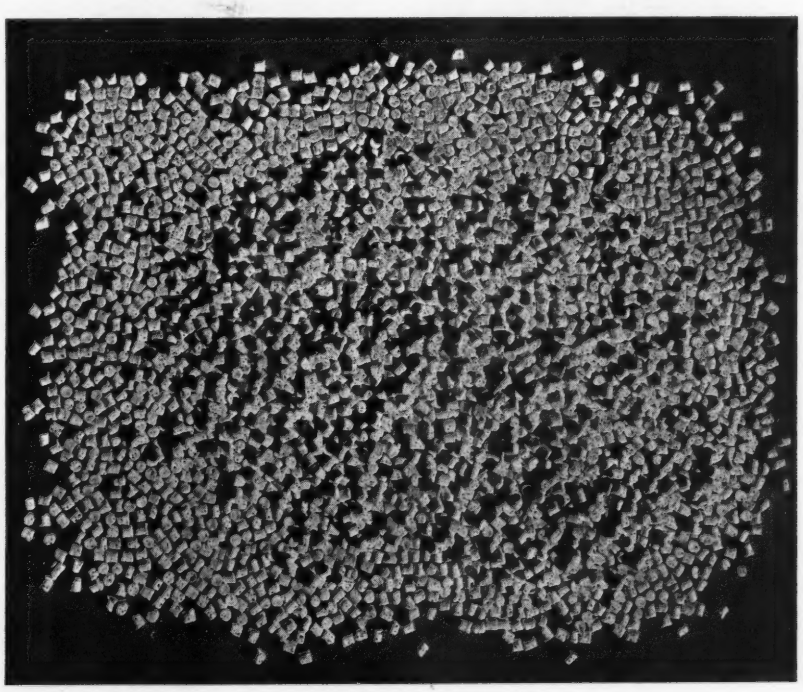
Factors Affecting Catalyst Activity

During normal T.C.C. cracking operations, the equilibrium catalyst activity depends on the catalyst replacement rate and the activity of the new catalyst added. Figure I shows the effect of makeup rate on activity when adding new 40 A.I. clay catalyst. These results are achieved by careful control of the variables which affect catalyst life and in addition, by design features which are built into T.C.C. plants for the specific purpose of protecting the catalyst from conditions that would cause rapid aging.

The degree of activity decline depends on the condition of time, temperature and steam partial pressure to which the catalyst is subjected during the various stages of its cycle around the unit. These factors are all interrelated. Thus, high temperatures are much more detrimental to the catalyst activity when steam partial pressures are high, and for a given temperature and steam concentration, the aging effect increases with increase in length of time at those conditions. Conversely, quite high partial pressures of steam are tolerable if the temperature is low and the time of exposure is short. Likewise, the catalyst can be subjected to relatively high temperatures, 1150-1200°F., for short periods without deleterious effect provided steam is not present.

A knowledge of these various factors affecting catalyst activity has played an important part in the design of the present commercial T.C.C. unit, and each section has been reviewed in relation to its effect on the equilibrium activity to be expected.[2] Thus, the kiln has has been designed to conduct the burning in separate stages, each of which is separately controlled by water cooling coils to limit the temperatures. Having this flexibility and knowing the concentration of steam in each zone of the kiln, the temperature can be adjusted to avoid the existence of high steam concentration and high temperature in the same zone. It should be mentioned that no steam is added to the kiln other than the trace of moisture normally present in the air plus a small quantity from the air line burner. The main portion of steam that is present originates from the combustion of hydrogen in the catalyst deposit and from the desorption of water which was adsorbed by the catalyst in the reactor and oil purge sections.

When the spent catalyst enters the kiln the hydrogen and sulfur



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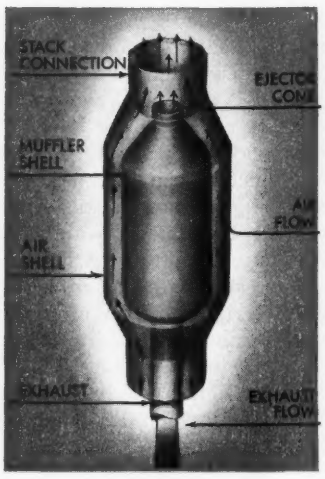

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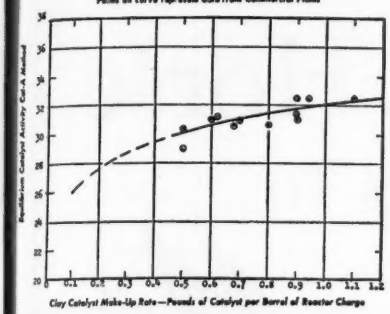
Figure I. Equilibrium Catalyst Activity vs. Catalyst Make-up Rate
Clay Catalyst
Points on curve represent data from Commercial Plants



contained in the catalyst deposit burn preferentially, and at the same time the desorption of water occurs rapidly as a result of the rise in catalyst temperature. Thus, the bulk of water and SO_2 will be released in the first two or three zones of the kiln. Consequently, the catalyst temperatures are kept relatively low (875-975°F.) and the residence time is kept short. During the later stages of the regeneration and in the final cleanup zones where combustion of almost pure carbon takes place, the temperatures may be safely increased and the residence time lengthened. Relatively high temperatures of the order of 1100-1150°F. are required for the efficient and complete cleanup of the catalyst within a reasonable length of time.

Economic Study

The economic study which has been developed applies to a T.C.C. unit which has a reactor charge capacity of 10,000 BPSD and which is equipped with a kiln capable of burning 5500 #/hour of coke. The yield structure is based on the use of clay catalyst when single pass cracking a heavy Mid-Continent dewaxed distillate possessing the following physical characteristics:

Gravity—°API	30.3
Distillation	Vacuum Dist. Corr. to 760 MM
IBP	496
10%	616
50%	720
90%	797
E.P.	825
Aniline No. °F	187
Pour—°F.	15
Sulfur—Wt.%	0.24

This particular stock was used for the present study because a rather complete and reliable correlation of operating variables was available for setting up the effect of incremental changes in catalyst activity on yields. Such information is essential in order to establish optimum yields for the operations under consideration, particularly where certain conditions are arbitrarily fixed and only one or two variables are changed to show their effects. As will be noted in the yield data presented below, the chosen charge stock possesses unusually good cracking characteristics. This is indicated by the high level of gasoline yields obtained from single pass operations. Other stocks will have different cracking characteristics and may give either higher or lower gasoline yields than the example stock, but it is reasonable to expect that the effects of catalyst activity change will be similar.

Catalyst Makeup Rates

Figure No. I is a graph showing the catalyst makeup rates required for various equilibrium catalyst activities. This curve is based on average past commercial experience for all plants utilizing clay catalyst and operating on a variety of charging stocks. It is felt that the curve is conservative when viewed from the standpoint of future operations where improved design of equipment and operating technique will undoubtedly reduce the catalyst makeup for a given equilibrium activity. Another factor which affects the required makeup rate is uniformity in hardness of the new catalyst. Thus, new catalyst which is inferior in this respect will result in a situation where attrition of the fresh catalyst is excessive, thereby resulting in a lower activity for a given makeup rate.

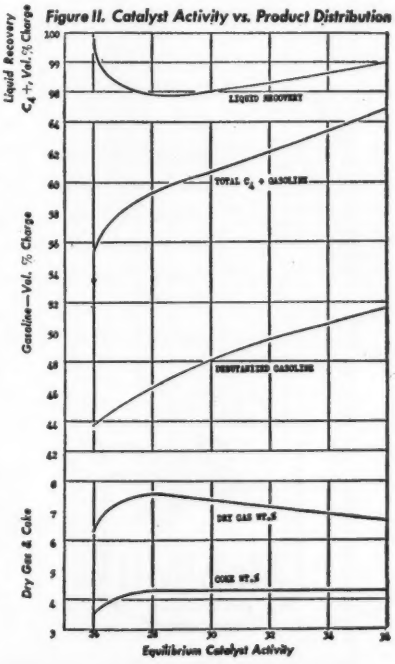
At the present time the majority of commercial T.C.C. plants using clay catalyst are operating in the range of 29 - 31 A.I. with makeup rates approximating those shown in Figure I. Since it is unlikely that any T.C.C. plant charging sweet gas oils would encounter activities lower than 26 A.I., even with the minimum of makeup required to replace attrition losses, this activity has been selected as a base for the present economic study. Higher activities may be obtained by appropriate increases in catalyst makeup rates. Thus, for the present study, we have considered yields from catalysts ranging in activity from 26 A.I. to 36 A.I. in increments of 2 A.I. This range in activity calls for makeup rates in the range of 0.1 #/barrel of feed stock to greater than 2.0 #/barrel (equivalent to 0.5 tons/day to greater than 10 tons/day for a 10,000 BPSD T.C.C. plant). The makeup rate for the 34 A.I. catalyst was obtained by extrapolating the curve in Figure I.

A portion of the catalyst removed daily for replacement consists of catalyst fines. This material will not normally amount to more than 0.1 #/barrel of feed stock, but its elimination is required to maintain the unit in proper operating condition.

A simple system of elutriation and cyclone separation is used to remove the fines from the plant. A portion of the regenerated catalyst stream is continuously by-passed through an elutriator where free falling catalyst is countercurrently contacted with a stream of air which carries the fine material overhead and into a cyclone separator from which they are withdrawn into a fines storage hopper. The catalyst pellets emerge from the bottom of the elutriator free of fines and flow back into the main catalyst stream by gravity.

Thus, it is seen that the minimum catalyst makeup would be that quantity required to replace the fines. Where greater catalyst makeup rates are used, it is apparent that heavier elutriation would be desirable for removing all catalyst withdrawn. This is the recommended

Figure II. Catalyst Activity vs. Product Distribution



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procedure and is accomplished by increasing the air rate through the elutriator until the desired quantity of catalyst is carried overhead into the cyclone separators. By this procedure the catalyst within the plant will be of maximum particle size and free of fines and fragments of broken pellets.

Yields vs. Catalyst Activity Index

Table I presents yields from cracking the Mid-Continent stock in single pass operation over clay catalysts whose activities vary from 26 to 36 A.I. These data are also given in graphic form in Figure II. In selecting these yields the following conditions were fixed:

Average Reactor Temp.	850°F.
Average Reactor Pressure	10 psig
Steam	5% Wt. of Charge
Catalyst/Oil Ratio V/V	1.8
Coke Yield	4.3 Wt.%

The average reactor temperature was fixed at 850°F. since this level is favorable from the standpoint of gasoline yields, gasoline quality and liquid recoveries. The 10 psig reactor pressure is conventional, and 5% weight of steam is an amount which assures complete vaporization of the charge stock at prevailing conditions of temperature and pressure. The catalyst to oil ratio was fixed at 1.8 to correspond with 100 tons per hour catalyst elevators on a 10,000 BPSD plant. Coke make was fixed at 4.3% weight of charge which corresponds to a burn-off rate of 5500 #/hour in the kiln.

As the catalyst activity was varied, the space rate was changed to obtain the proper conversion for 4.3% weight of coke so as not to exceed the stated capacity of the kiln. It will be noted, however, that it was not possible to obtain 4.3% coke with the 26 A.I. catalyst at 850°F. even though the minimum practical space velocity of 0.35 was used. This fact immediately points out the undesirability of using low catalyst activities since it is then necessary to use excessively high temperatures or extremely low space rates, either or both of which result in unfavorable product distribution particularly from the standpoint of high gas formation and low liquid recoveries.

Figure No. II emphasizes the advantages to be gained from cracking with catalyst of high activity. As activity increases from 28 A.I. to 34 A.I. at constant coke yield, the debutanized gasoline yield increases from 46.2 to 50.5 volume per cent of fresh charge. This represents an increase of 9.3 per cent based on gasoline yield. At the same time the cracking efficiency, which is defined as $\frac{\text{gasoline} + \text{total C4}}{\text{conversion}}$, increases from 96.6 to 97.8. These same data are shown in the following tabulation where results are also given on the 34 A.I. catalyst when operating conditions are adjusted to give the same gasoline yield as that obtained from the 28 A.I. catalyst.

Activity Index of Clay Catalyst	28	30	32	34	34
Conversion (100—Vol.% Cat. Gas Oil)	61.5	62.7	63.6	64.7	53.6
Gasoline C_4 Free—Vol.% Chg.	46.2	48.1	49.5	50.5	46.2
Total C_4—Vol.%	13.2	12.6	12.4	12.8	9.1
Liquid Recovery—Vol.%	97.9	98.0	98.3	98.6	101.7
Coke—Wt. %	4.3	4.3	4.3	4.3	2.6
Cracking Efficiency—Vol.%	96.6	96.8	97.3	97.8	103.1

Cracking efficiency and coke yield are markedly improved when using the higher activity and running to the same gasoline yield. Thus, the cracking efficiency has increased from 96.6 to 103.1 and the coke yield has decreased approximately 40%—i.e., from 4.3 to 2.6 wt.% of charge. These differences are quite large and have a pronounced effect on economics.

The yields given in Table I were used as a basis of calculating earnings.

Earnings vs. Catalyst Activity

Table No. II presents a summary of differential earnings versus catalyst activity. Since we are considering a single plant, the investment is the same in all cases and need not be considered. A direct operating cost of $1000 per day has been assigned to cover all items other than catalyst cost, and the catalyst cost is given as a separate item.

The following price structure was chosen:

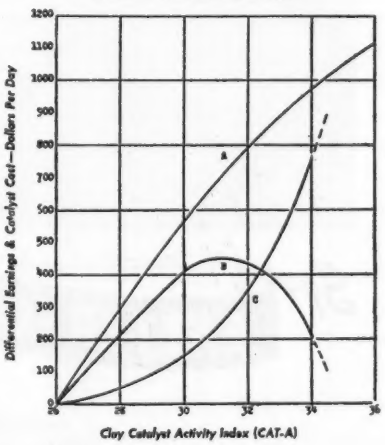
	¢/Gal.	$/Bbl.
Charge Stock	3.5	1.47
10# Catalytic Motor Gasoline 78 ASTM Octane Number	6.25	2.625
No. 2 Furnace Oil	3.75	1.575
Heavy Catalytic Gas Oil		0.97
Fuel oil		0.97
Clay Catalyst Cost		$80/Ton

Results are expressed in terms of differential earnings per day above a base catalyst activity of 26 A.I. and are given without catalyst makeup cost and again including catalyst cost in order to show more clearly the relation between catalyst activity and earnings.

Figure No. III presents curve constructed from the data in Table II. Curve A shows differential earnings excluding catalyst cost. Curve B shows differential net earnings including catalyst cost, and Curve C shows differential catalyst cost,—all plotted against catalyst activity index. The differential earnings (Curve A) are reduced by the cost of catalyst (Curve C) to the final differential net earnings shown by Curve B. The differential net earnings increase steadily from 26 A.I. catalyst to attain a maximum at 30-32 A.I. catalyst and then decrease rapidly above 32 A.I. due to the excessive catalyst makeup rates required to obtain the higher equilibrium activities.

The shape of Curve A (Figure III) is well worth noting since it again illustrates the advantages to be derived from the use of high activity catalysts. The rise in value of products with increase of catalyst activity is a reflection of the improved

Figure III. Differential Earnings vs. Catalyst Activity
Basis—10,000 BPSD TCC unit, 5500 pound/hr. coke burning capacity.
A Differential earnings excluding Catalyst cost.
B Differential net earnings including Catalyst cost.
C Differential cost of make-up Catalyst.



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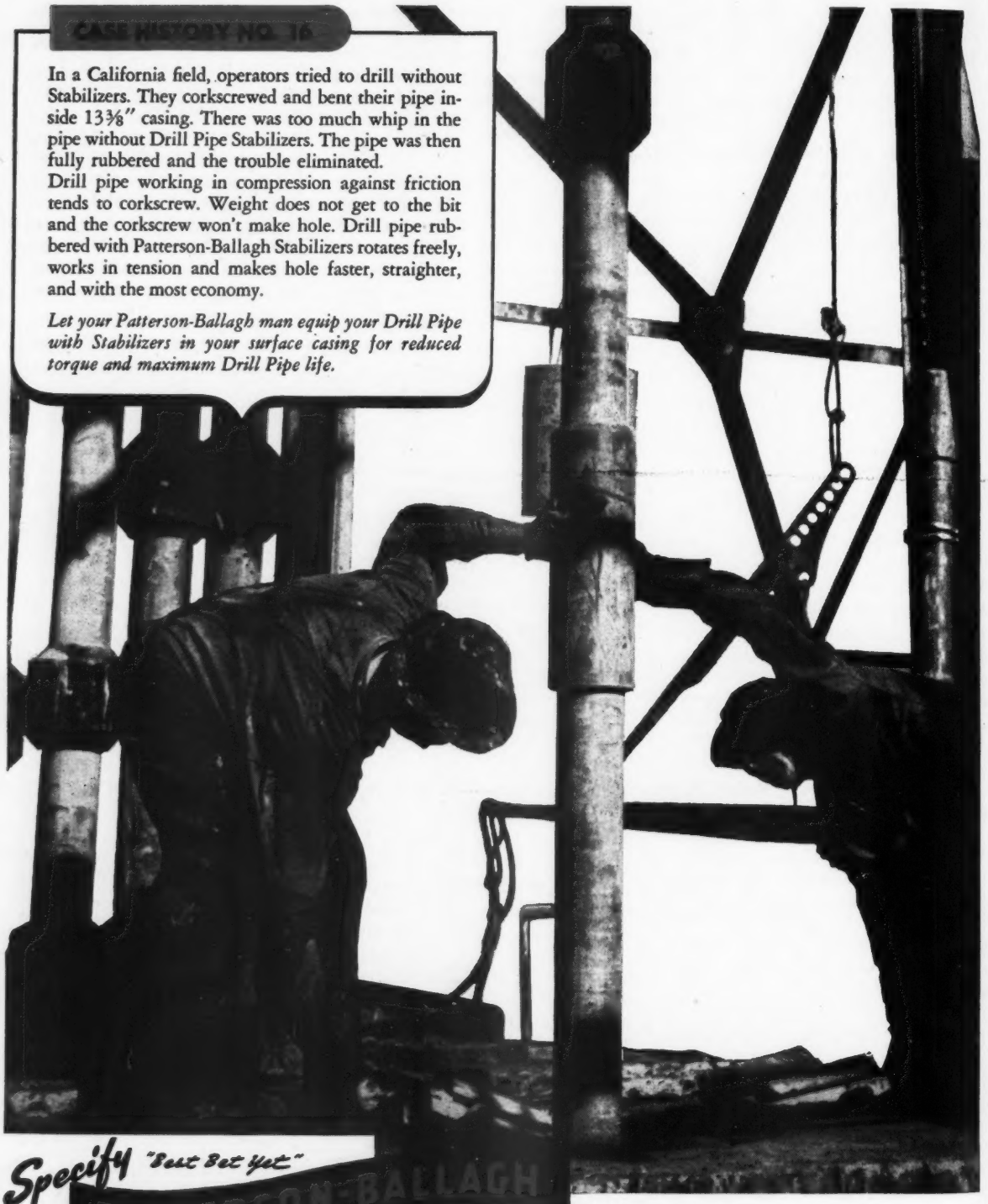

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TABLE I

SUMMARY OF YIELDS—CATALYST ACTIVITY VS. PRODUCT DISTRIBUTION

TYPE CATALYST		Clay Catalyst					
CATALYST ACTIVITY INDEX—CAT-A METHOD		26	28	30	32	34	36
TYPE OPERATION		Single Pass					
OPERATING CONDITIONS							
Space Velocity V/Hr/V		0.35	0.35	0.5	0.74	1.05	1.34
Avg. Reactor Temp. °F.		850	850	850	850	850	850
Avg. Reactor Pres. psig		10	10	10	10	10	10
Steam, Wt. % of Charge		5	5	5	5	5	5
Cat/Oil Ratio, Vol/Vol		1.8	1.8	1.8	1.8	1.8	1.8
CONVERSION (100—Vol. % Total Catalytic Gas Oil)		55.6	61.5	62.7	63.6	64.7	65.8
YIELDS							
Motor Gaso. C_4 Free	Vol. %	43.7	46.2	48.1	49.5	50.5	51.7
Light Catalytic Gas Oil (#2 Fuel)	Vol. %	28.1	26.6	25.9	25.5	25.0	24.3
Heavy Catalytic Gas Oil [redacted]	Vol. %	16.3	11.9	11.4	10.9	10.3	9.9
Total C_4	Vol. %	11.6	13.2	12.6	12.4	12.8	13.1
Recovery	Vol. %	99.7	97.9	98.0	98.3	98.6	99.0
Dry Gas	Wt. %	6.3	7.6	7.3	7.0	6.9	6.7
Coke	Wt. %	3.5	4.3	4.3	4.3	4.3	4.3
Coke Burned, #/Hr/10,000 BPSD Chg.		4,460	5,500	5,500	5,500	5,500	5,500
N-Butane	Vol. %	1.6	1.7	1.6	1.5	1.5	1.6
I-Butane	Vol. %	6.6	7.0	6.4	6.0	6.0	6.4
Butenes	Vol. %	3.4	4.5	4.6	4.9	5.3	5.1
Total C_4	Vol. %	11.6	13.2	12.6	12.4	12.8	13.1
10# Motor Gaso.	Vol. %	47.4	50.1	52.1	53.6	54.8	56.0
Excess C_4	Vol. %	7.9	9.3	8.6	8.3	8.5	8.8
Dry Gas F.O.E.	Vol. %	6.4	7.8	7.5	7.1	7.0	6.8
CATALYST MAKE-UP, TONS/DAY		0.5	1.25	2.4	4.9	10	....
CATALYST MAKE-UP COST, $/DAY		50	100	192	392	800	....

product distribution which was shown graphically in Figure II. With very low catalyst activities, the cracking reaction must be forced by the use of high temperature or high catalyst to oil ratios, resulting in undesirable thermal reactions which result in low cracking efficiency. The demonstrated sensitivity of product value to catalyst activity and the opposing influence of catalyst cost to attain the higher activities illustrates the importance of design and operating technique on earnings in catalytic cracking processes.

Conclusions

The result of this economic study lead to conclusions which are stated briefly as follows:

1. Earnings increase with increase in equilibrium catalyst activity due to better cracking efficiency with the higher catalyst activities.
2. A minimum catalyst makeup rate is not necessarily the optimum operation since earnings may not be at a maximum.
3. Maximum earnings are realized at a clay catalyst activity level of 30-32 A.I., corresponding to a catalyst makeup rate of approximately 4 tons per day in the case of a 10,000 BPSD T.C.C. plant. This is equivalent to 0.8# of catalyst per barrel of total feed. Obviously, this conclusion depends on the catalyst activity level for a makeup rate of 4 tons per day. In cases where higher catalyst activities are realized for this same makeup rate, then the optimum activity will be at the higher level.

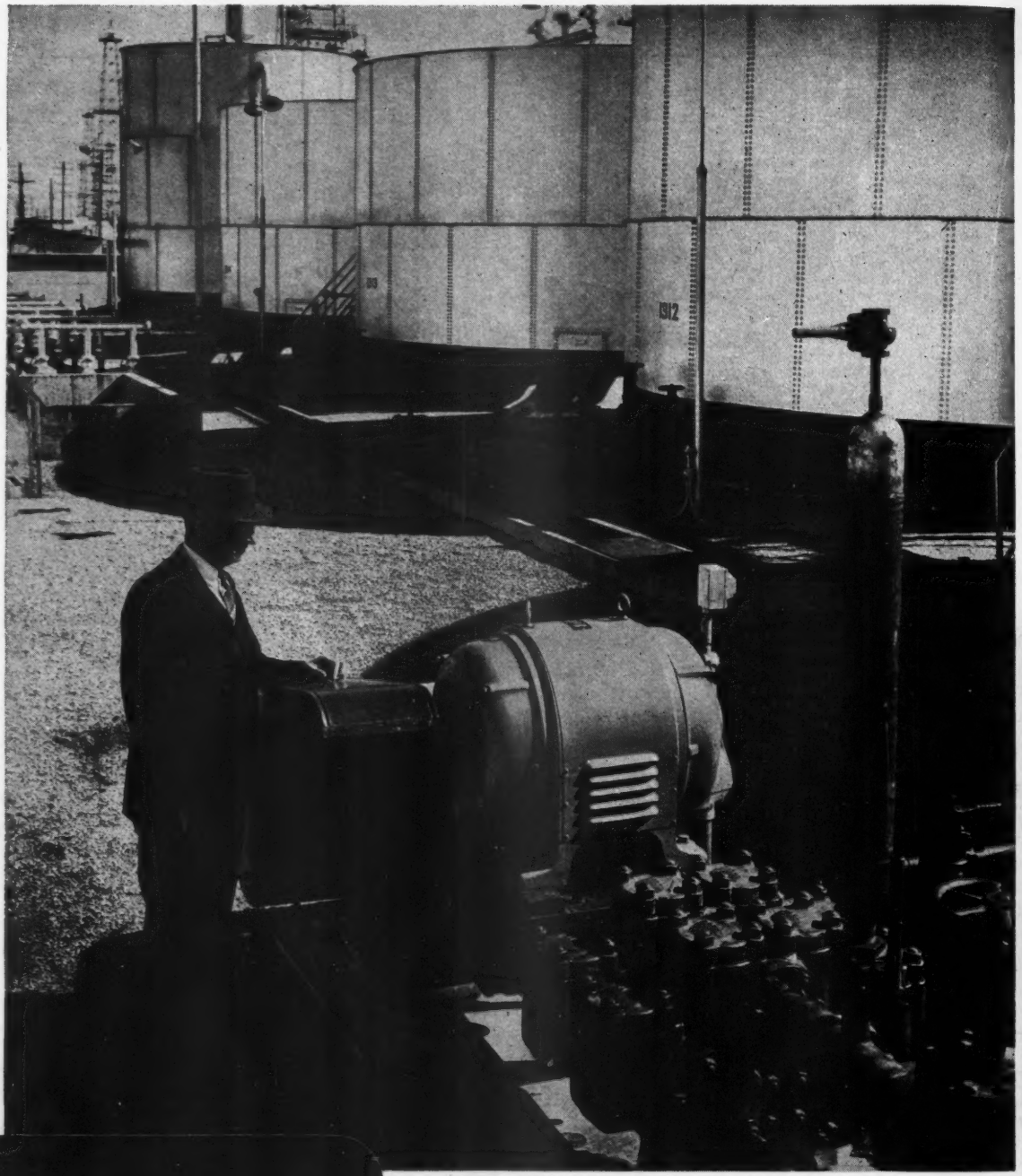
(Continued on Page 32)

TABLE II

SUMMARY OF DIFFERENTIAL EARNINGS VS. CATALYST ACTIVITY

CATALYTIC ACTIVITY	¢/Gal	$/Bbl	26 A.I. B/Day	26 A.I. $/Day	28 A.I. B/Day	28 A.I. $/Day	30 A.I. B/Day	30 A.I. $/Day	32 A.I. B/Day	32 A.I. $/Day	34 A.I. B/Day	34 A.I. $/Day	36 A.I. B/Day	36 A.I. $/Day
CREDITS:														
Motor Gasoline 10# RVP	6.25	2.625	4,740	12,419	5,010	13,126	5,210	13,650	5,360	14,043	5,480	14,358	5,600	14,692
#2 Furnace Oil	3.75	1.575	2,810	4,412	2,660	4,176	2,590	4,066	2,550	4,004	2,500	3,925	2,430	3,815
Heavy Catalytic Gas Oil		0.97	1,630	1,581	1,190	1,154	1,140	1,106	1,090	1,057	1,030	999	990	960
Excess C_4 Cut F.O.E.		0.97	530	514	633	614	581	564	561	544	571	554	569	552
Dry Gas F.O.E.		0.97	643	624	775	752	745	723	714	693	704	683	684	664
Total Credits				19,550		19,822		20,109		20,341		20,519		20,663
DEBITS:														
Fresh Charge Stock	3.5	1.47	10,000	14,700	10,000	14,700	10,000	14,700	10,000	14,700	10,000	14,700	10,000	14,700
Direct Operating Costs Excluding Catalyst Cost				1,000		1,000		1,000		1,000		1,000		1,000
Total Debits Excluding Catalyst Cost				15,700		15,700		15,700		15,700		15,700		15,700
Catalyst Make-Up			0.5*	40	1.25*	100	2.4*	192	4.9*	392	10*	800	....	....
Total Debits Including Catalyst Cost				15,740		15,800		15,892		16,092		16,500		....
Credits Less Debits Excluding Cat. Cost				3,850		4,122		4,409		4,641		4,819		4,963
Credits Less Debits Including Cat. Cost				3,810		4,022		4,217		4,249		4,019		....
Differential Earnings Excluding Catalyst Make-Up Cost				Base		272		559		791		969		1,113
Differential Net Earnings Including Catalyst Make-Up Cost				Base		212		407		439		209		....
Differential Catalyst Make-Up Cost				Base		60		152		352		760		....

*Tons Per Day.



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C.N.G.A. Annual Meeting

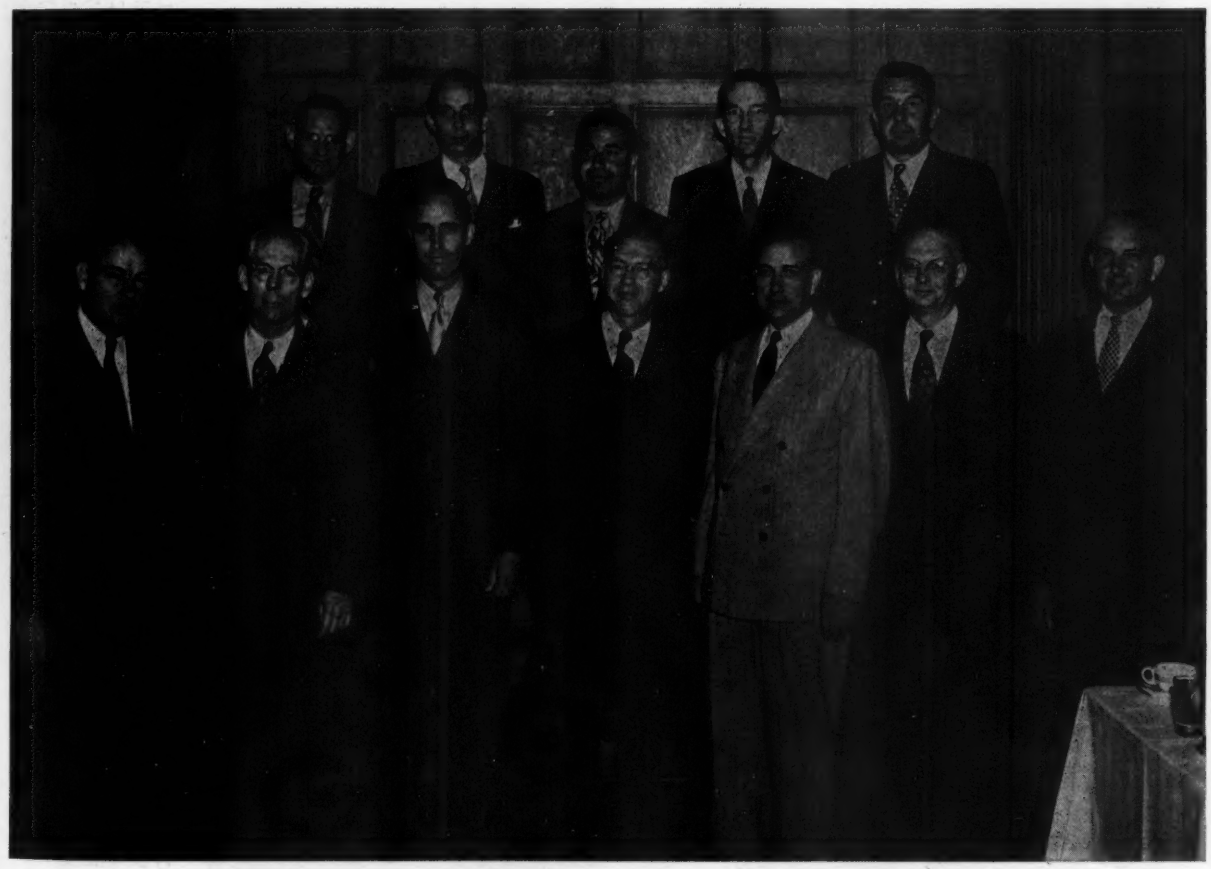
The Annual Meeting of the Board of Directors of the California Natural Gasoline Association July 9, 1946, at the Biltmore Hotel, Los Angeles, was the occasion for the announcement of officers, directors and committees for the fiscal year 1946-47. Following acceptance by incoming president M. W. Kibre of General Petroleum Corporation, of a gavel presented to him by retiring president M. L. Arnold, Richfield Oil Corporation, announcement was made of the election to the directorate of four new members, Messrs. Coles B. Bason, Ingersoll-Rand Co., H. L. Eggleston, General Petroleum Corp., C. L. Hutchings, Tide Water Associated Oil Co. and R. C. Patterson, Belridge Oil Co. George F. Howells, Tide Water Associated Oil Company, and chairman of the Taft Chapter of the Association, is also a new director. George L. Tyler was reappointed secretary-treasurer and is now serving his ninth year in that capacity.

Committee appointments were confirmed at the meeting.

In reviewing the affairs of the Association for the past fiscal year, it was pointed out that membership has increased steadily and the work of the Technical Committees has continued throughout the war period which has resulted in a number of revisions and new bulletins which will be released soon. A noteworthy accomplishment of the past year was the enlarging and improvement of the Association's monthly report of natural gasoline and cycling plant operations, natural gasoline and LPG production data, and natural gas production and disposition information.

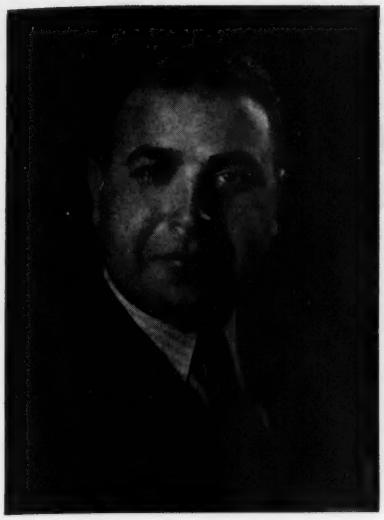
The Association continues to cooperate actively with other technical groups of the country and has just recently received confirmation of E. P. Valby, technical committee chairman, as the CNGA representative on the ASTM Technical Committee H on Light Hydrocarbons.

The Annual Fall Meeting of the Association is scheduled for October 11, 1946, at the Ambassador Hotel, Los Angeles. General chairman of the event is E. G. Ragatz, Bechtel Bros. & McCone Company.

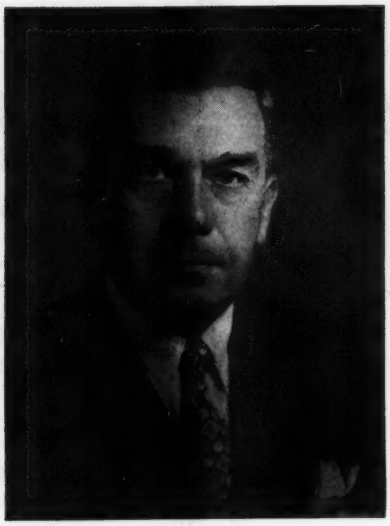


STANDING COMMITTEE CHAIRMEN, CALIFORNIA NATURAL GASOLINE ASSOCIATION, FISCAL YEAR 1946-47: Top row, left to right: D. B. Johns, vice-chairman, Technical Committee; P. W. Mettling, chairman, Entertainment Committee; M. W. Kibre, president and chairman, Executive Committee; L. Harmon Peahl, secretary, Taft Chapter; F. J. Colton, vice-president and chairman, Advisory Committee. Lower row, left to right: R. S. Tulin, chairman, Gas Report Committee; C. D. Gard, chairman, Finance and Budget Committee; L. E. Woodruff, chairman, Program Committee; J. B. Taylor, chairman, By-Laws Revisions Committee; E. G. Ragatz, chairman, Fall Meeting Committee; E. P. Valby, chairman, Technical Committee; M. L. Arnold, chairman, Publicity Committee.

ANNUAL DIRECTORS' MEETING, CALIFORNIA NATURAL GASOLINE ASSOCIATION, BILTMORE HOTEL, JULY 9, 1946, LOS ANGELES. Around outside of table, left to right: H. M. Paulsen, W. H. Kraft, H. Parmelee, E. G. Ragatz, chairman, Fall Meeting Committee; P. W. Mettling, chairman, Entertainment Committee; L. H. Peahl, secretary, Taft Chapter; G. L. Tyler, secretary-treasurer; M. L. Arnold, retiring president; M. W. Kibre, incoming president; F. J. Colton, vice-president; W. W. Robinson, Jr., R. W. Heath, L. V. Cassady, R. C. Enderly, H. L. Eggleston, W. L. Rifenberick, C. D. Gard. Around inside of table, left to right: J. B. Taylor, W. A. Kirk, E. A. Brock, chairman, Membership Committee; Coles B. Bason, R. C. Patterson, P. S. Magruder, D. B. Johns, vice-chairman, Technical Committee; E. P. Valby, chairman, Technical Committee; C. L. Hutchings, L. E. Woodruff, chairman, Program Committee; H. E. Moulton, Wm. Moeller, Jr., R. S. Tulin.



M. W. Kibre, C.N.G.A. President



F. J. Colton, C.N.G.A. Vice President

The California Natural Gasoline Association's president for the 1946-47 term is M. W. Kibre, assistant manager of the General Petroleum's Gas Department. "Jim," as Kibre is known throughout the industry, started his industrial career with the Celite Corporation as a chemist in 1927, shortly after graduating from the University of California with a B.A. degree in Chemistry.

From the Celite Corporation he went in 1929 to the Santa Fe Springs laboratory of the General Petroleum Corporation where he worked as a chemist until 1937, when he was transferred to the Vernon office as a gas engineer. Since that time his promotion in the gas department has been rapid: Superintendent in 1942, General Superintendent in 1944, and Assistant Manager in 1946.

Kibre has been actively associated with technical work of CNGA since 1929. At that time he was appointed to the Fractional Analysis Committee, an appointment which he held until 1937 when he became a member of the Technical Committee. During 1940-41 he served as Technical Committee chairman. Last year he served as vice president of the Association and chairman of the Advisory Committee.

Mr. Kibre is married, has one child, and lives in Whittier.

The California Natural Gasoline Association's vice president for the 1946-47 term is Frank J. Colton, Superintendent of Gas Operations for the Tide Water Associated Oil Company. Mr. Colton is a Native Son, having been born in Bakersfield, California.

Upon completion of his scholastic training in 1920, he entered the engineering department of the Associated Oil Company, and continued in engineering work until transferred to the gas department in 1926 and became head of the gas department in May of that year.

His experience in the engineering department has given Frank a broad knowledge of oil field operations, including drilling, production and construction, as well as natural gasoline. Since his association with his company's natural gasoline department its scope has expanded from statistical and testing work to include manufacturing operations as well.

Besides business and CNGA activities, Mr. Colton is active in sports and social affairs. He is married, has two children and lives in Long Beach.

Reese Taylor and Art Stewart, Union Oil Co., were among prominent Southlanders in attendance at the San Francisco Bohemian Club encampment on the Russian River. This annual junket is the club's feature event.

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Personalities IN THE NEWS

Parsons Elected Vice Pres. of Hughes Tool Co.

Noah Dietrich, Executive Vice-president of Hughes Tool Company, has announced the appointment of Claude P. Parsons as Vice-president and Special Sales Representative.

Claude Parsons

Mr. Parsons has been a leading figure in the oil production industry of the nation and is well-known in oil circles in the southwest. Prior to joining Hughes, Mr. Parsons was Vice-president in Charge of Sales for Halliburton Oil Well Cementing Co. of Duncan, Okla. In the fourteen years Mr. Parsons spent with the Halliburton Company he also filled the executive positions of Chief Field Engineer and General Sales Manager. Desiring to learn the oil drilling business from actual experience, Mr. Parsons entered the oil fields in 1919 after his release from the United States Army Air Force where he served as a pilot in World War I. During the recent war Mr. Parsons served for almost two years as Director of Material Division, Petroleum Administration for War in Washington, D. C., where he also represented the petroleum industry on the top committee of the War Production Board.

Because of his rare combination, having had many years of field experience and having been a student of the ever advancing science of drilling wells, Mr. Parsons has been in great demand as a speaker at technical oil industry sessions. It is generally recognized that Mr. Parsons is one of the most outstanding men in the industry in solving tough drilling problems which involve the penetration of the hardest formation.

Mr. Parsons is a member of the American Association for Oil Well Drilling Contractors, the American Institute of Mining and Metallurgical Engineers, the American Association of Petroleum Geologists, and the American Petroleum Institute. Mr. Parsons is also a member of the Tulsa Nomads and the Tulsa Engineering Society.

Cameron Announces Subsidiary California Corporation

Cameron Iron Works, Inc., Houston, Texas, manufacturer of drilling and completion control equipment and other specialties, has announced the formation of a California corporation to be known as Cameron Iron Works of California.

H. G. Musolf

According to an announcement from Mr. Edmond L. Lorehn, Vice-President of the new corporation, the subsidiary company was organized for the purpose of more adequately serving Pacific Coast operators through all bona fide supply stores.

Justin Radeck

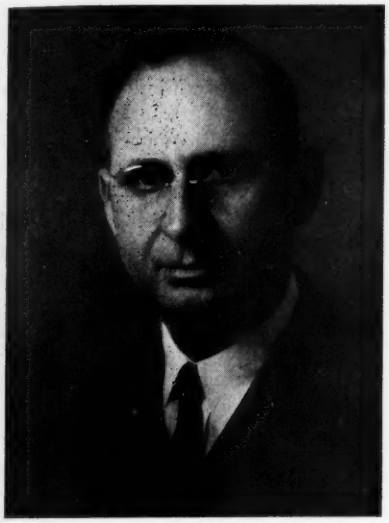
At present, the new corporation will not engage in manufacture of Cameron products in California but will maintain adequate stocks of Cameron materials for distribution on the Pacific Coast.

Adminisrative and warehousing facilities will be established in the Long Beach Harbor Area at 1442 Hayes Avenue, Long Beach 6, and will be under the supervision of Mr. H. G. (Jeff) Musolf. Mr. Musolf will be assisted by Mr. Justin (Just) Radeck. The telephone number will be Long Beach 7-2036. As soon as the Nevada Exchange is available the clientele will be informed.

A temporary mailing address of 1980 Cedar Avenue, Long Beach 6, California, will be in order until the clientele is otherwise notified.

Graser Accepts Professorship At Missouri School of Mines

F. A. (Art) Graser, one of California's best known petroleum engineers, recently accepted a chair at the University of Missouri School of Mines as Associate Professor of Petroleum Engineering.



F. A. Graser

Art Graser is one of the old timers in the California oil industry, having started in 1916 as a youngster working in the oil fields, leaving this work in May, 1917, to serve in World War I. After being mustered out in 1919 he went back to work in the Southern California fields for one year, leaving to complete his studies at the University of California, from which he graduated with a B.S. degree in petroleum engineering in 1924.

Following graduation from the University, his first petroleum engineering job was with the State Mining Bureau, now known as the State Division of Oil and Gas. After serving as an inspector and engineer for over three years he left the State Mining Bureau to become a field engineer for Pan American Petroleum Company.

After serving several years with various California oil companies, Art went into private consulting work. For the last 15 years he has done consulting work for scores of California companies.

Mr. Graser is a member of the A.A.P.G., and for one term was Chairman of the Los Angeles Basin Chapter of the A.P.I.

Mr. Graser is married and his wife and son Jim have left to take up residence near the university campus at Rolla, Missouri. His daughter, Marilynn, is a junior at the University of California, and will continue her studies there.

The California oil industry extends very best wishes to Art in his new and very responsible position.

H. H. (Bob) Roberts, Standard of California public relations chief at Los Angeles, announced the other day that another Bob Roberts had been appointed manager of the company's recently formed labor relations department. The latter is W. M. Roberts, a member of the Standard staff since 1919 and a San Francisco resident. He joined Standard just after World War I. In this earlier conflict he served with the Ambulance Corps in France. Employee relations work has been his chief interest with the company for the past 12 years.

* * *

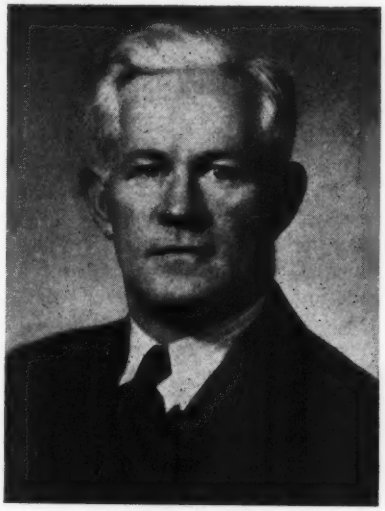
Retirement of veteran court reporter Monroe H. Conlee, 68, in the Superior Court of Los Angeles County recalled that it was Conlee who recorded the longest trial ever to be heard in the County. It was the Kettleman Hills North Dome case lasting 23 months before Judge Minor Moore.

* * *

Adequate powering of the machines of war in the battle grounds of the world was one of the major achievements of the armed forces. During the second World War, Howard C. Pyle, now a Bank of America vice president in charge of oil loan activities, served as a lieutenant colonel on the SHAEF staff, the group that planned supply and distribution of petroleum on all fronts. Howard has just been signally honored by being named as chairman for 1947 of the petroleum division of the American Institute of Mining and Metallurgical Engineers. He is the author of many papers on production engineering subjects.

Cumming and Bowlby Advanced by Shell

Two major appointments were announced recently by S. Belither, Executive Vice President of Shell Oil Company, Incorporated.



E. D. Cumming

E. D. Cumming, Vice President in Charge, Los Angeles, who started with Shell twenty-three years ago as a fireman in Long Beach, takes an assignment of international importance in London next month.

S. F. Bowlby, former Assistant Production Manager in Los Angeles, succeeded Cumming as Vice President on August 1. He started as an assistant engineer in the Texas oilfields twenty years ago.

S. F. Bowlby
(Waxahachie)

The picturesque "Suzie-Q" Ranch of Thomas W. Simmons, president of Bolsa Chica Oil Corp. was the setting for an afternoon and evening party at which officers and directors of the Hollywood Turf Club played host to members of the California Horse Racing Board. Simmons is a director of the racing organization.

* * *

Rush Blodget, who numbers his friends in the industry by the hundreds, stopped off for a short vacation at Yellowstone Park on his return trip to Los Angeles from Cheyenne, Wyo., where he attended a meeting of the executive committee of the Independent Petroleum Association of America.

* * *

V. R. G. Wilbur of Pasadena, who has been developing oil in quantity ever since the early days of Signal Hill, was among the few civilian spectators at the first detonations of atomic bombs at Bikini. He viewed the awe inspiring tests from a monitor ship.

* * *

Geologist R. E. Woods of Generai Petroleum Corp. at Los Angeles has been transferred to Casper, Wyoming, where the company is continuing oil development. General, incidentally, has just appointed West-Marquis, Inc. as the company's advertising agency.

* * *

Clarence E. Beesemyer, vice president and director, General Petroleum Corp. made known that his organization has just placed in service two Stinson Voyagers and a Beechcraft D-18S, a part of an aviation sales products program. Piloting will be conducted by W. D. Ellison, aviation sales manager, C. E. West, E. C. Nissen, R. S. Dodson and W. Goddard.

* * *

J. O. Kinney Trucking Co. in Santa Maria has been purchased by John Watson, Long Beach operator, and Harry Ditmore, formerly of Bakersfield. The change of ownership is reported as having involved in excess of $30,000. The firm will continue to render service to the Santa Maria Valley field.

Miller Advanced by Standard

Appointment of O. N. Miller as general manager of Standard of California's manufacturing department, in charge of the Richmond, El Segundo and Bakersfield refineries, was announced recently.

Only 37 years old, Mr. Miller is the youngest man to hold this key job in Standard's history. He succeeds C. E. Finney, Jr., who became a vice president of the company in January.

O. N. Miller

Miller joined Standard in 1934 after receiving his doctor's degree in chemical engineering at the University of Michigan. He first worked in research and development, specializing on cracking problems.

Subsequently Miller became assistant superintendent of the cracking division at El Segundo and then was transferred to the manufacturing department in the San Francisco home office in 1942. The following year he was transferred to the Standard affiliate, the Arabian American Oil Company, where his work included planning and designing of the Ras Tanura refinery in Saudi Arabia.

On completion of this assignment, Miller became assistant to the general manager of the manufacturing department and then returned to El Segundo as superintendent of the cracking division.

In January he became assistant to the vice president in charge of manufacturing, which position he has held till his present appointment.

Genial H. S. (Kels) Kelsey, in charge of Signal Oil & Gas Co.'s new sales training program, has chalked up more than ten years experience in the automotive sales and service field.

A new member of the Signal staff, his previous experience includes two years with the Studebaker service department in California, four years as service representative and service manager for Chevrolet in California, and more than three years as sales representative for the same company in California, Oregon and Washington.

Kels was a Colonel during the war in charge of the 333rd Field Artillery. He saw combat duty in Normandy, Northern Franch, Rhineland and Ardennes. Taken prisoner in the historic Battle of the Bulge, Kels outwitted the Germans, although suffering from wounds, by escaping and eventually making his way on crutches through parts of Russia and Poland.

* * *

Members of the Los Angeles Basin oil fraternity were interested in hearing of the election of George Legh-Jones as chairman of the board of Shell Union Oil Corp. at a meeting in New York. Legh-Jones, for many years president of Shell Oil Co. in San Francisco, has many friends in the Basin. At present he is managing director of Shell Transport and Trading Co. in London.

* * *

The passing of popular Guy Linton was a great shock to oil men. Still a young man, he was for the past decade secretary and treasurer of Wilshire Oil Co. He is survived by his mother, Mrs Bessie E. Machris and two sisters, Mrs. Marie Machris Westbrook and Katherine Machris. Charlie Stebbins, president of Amalgamated Oil & Gas Corp., passed away from a heart attack on his journey home from the funeral. He and Linton were friends of long standing and both prominent members of the Jonathan Club.

* * *

Try Test Located

Standard Oil Co. has made location for National Gas Corp.-Heath No. 1 gas try in Sec. 12-24s-22e in the Trico area of Kings County.

Field Development

PREPARED FROM CALIFORNIA OIL WORLD NEWS SERVICE

Los Angeles Basin

Newport Beach Interest Center

Standard Oil Co. has location staked for its McLeod No. 4 in Sec. 18-6s-10w on a block of leases in the West Newport Beach area of Orange County. It is an offset to Barnhart-Morrow Consolidated's Alford No. 1 well, which is drilling ahead below 3450 ft., with good oil and gas shows on the ditch. The company plans to core from 3480 to approximately 3750 ft. The A zone, encountered from 2320 to 2440 ft., and the B zone, found at 2482 ft., contained enough oil sand to offer possibilities of a commercial producer, from each zone individually or together. The try is further enhanced by the fact that the C zone may show something.

Signal Petroleum Co. of Calif., Callens No. 1 in Sec. 18 was last reported flowing to sump an estimated 375 barrels of 18.6 gravity oil daily through a 28/64-in. bean. Total depth is 4429 ft. In Sec. 13, Russell D. Garner and Warren L. Meeker have spudded Deeble No. 1. Macoil Co. has locations staked for eight more drilling jobs on its Banning lease. Signal Petroleum's McCain No. 2, near by, is drilling below 400 ft.

Reflecting the mounting interest in the area, Sunset Oil Co. is cleaning out its Meyer No. 1 in Sec. 17 to deepen from present depth at 4646 ft. to the C zone. L. & W. Co., Ltd. has rig built and will start in the near future well No. 1 on a 40-acre parcel in Sec. 18. D. D. Dunlap will do the drilling. Walt Crown is engineer. California Exploration Co. is grading location for its No. 1 well.

Shell Rigs Newhall Job

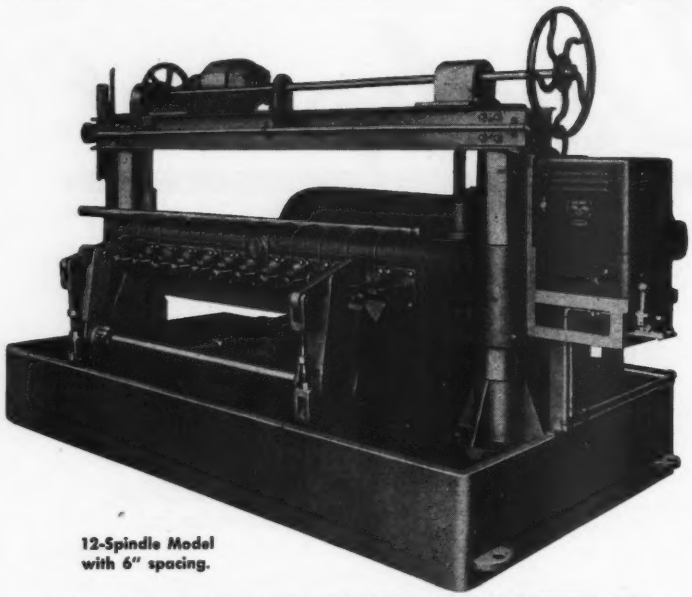
Shell Oil Co., Inc., is rigging Braille Institute No. 1 in Sec. 2-3n-16w in the Newhall area, Los Angeles County. The lease is on property owned by the famed institute of the blind and production success would be a boon to the sightless.

In the El Segundo area, Shell has placed its Six Companies Fee No. 1 in Sec. 2-3s-15w on the pump for around 100 barrels of oil daily from a plugged depth of 6940 ft.

East Los Angeles Yet Developing

C. C. M. O. Co., Bandini No. 1 in Sec. 21-2s-12w in the East Los Angeles area continues to drill on down at a depth of 12,511 ft. Richfield Oil Corp. is redrilling at 7602 ft. with Edison No. 1 in Sec. 16. The hole was carried originally to 8000 ft. Redrilled to 7831 ft., old hole was entered. Thereupon, plug

Drilling Foreman Al Fowks and Driller Chas. Berry, right, after the locking device had anchored the portable derrick into drilling position on Union Oil Co.'s. Callendar 100, in the Dominguez area.



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was set at 7585 ft. and the hole whipped in the direction desired. Location is being graded for Flood Control No. 1 in Sec. 14. Keller No. 1 in Sec. 9 is temporarily suspended at 9358 ft. In Sec. 8, U. P. Unit No. 2 is drilling at 4519 ft. Vail No. 2 in Sec. 16 is making ready to perforate above plug at 9050 ft. Total depth is 9238 ft., with casing set at 9200 ft. The lower part of the hole tested wet.

C. G. Willis is running 7 in. casing in Simons No. 1 in Sec. 15-2s-12w to set at a point above bottom at 9800 ft.

Del Valle Area Active Center

The Texas Co. has completed Kern No. 13-SW-18 in Sec. 18-4-17 in the Del Valle area at 4188 ft. for 157 barrels of 23.5 gravity oil. No. 13-NE-18 is drilling at 3600 ft. Pump is being rigged to Superior Oil Co. and British-American Oil Prod. Co., Black No. 4 in Sec. 13. Total depth is 3226 ft. Bankline Oil is rigging up Black No. 101 in the same section.

Union Sponsors Basin Wildcats

Union Oil Co., Culp No. 1 wildcat in Sec. 7-2s-11w near Pico is coring at 4650 ft. Simi No. 7 in Sec. 22-3n-17w in the Simi area has spudded and is making rapid time through surface formations. Hellman No. 58 in the Dominguez area is making hole below 3650 ft.

Inglewood Test Reaches Depth

Basin Oil Co.'s wildcat venture on the Standard Brick property in the townsite area of Inglewood is drilling at 5537 ft. The try has in view a number of possible objectives.

Boyle Heights Job Builds Rig

Richfield's Oil Corp.'s Boyle Community No. 33-1 wildcat in Sec. 31-1s-12w in the Boyle Heights district of Los Angeles is rigging up to start drilling operations. Considerable attention is focused on the test, which holds the interest of several thousand parties to the community lease.

San Joaquin Valley

Cymric Well Yield Excells

Universal Consolidated Oil Co. has completed an excellent flowing well on its fee lease in the Cymric field. The new producer, Sauerdough No. 8 in Sec. 23-29s-21e, flowed initially 803 barrels of 37.5 gravity crude oil along with 1,850,000 cubic ft. of gas from an interval open in the Oceanic zone between 4520 and 4618 ft. Flow was restricted by a 16/64-in. bean, with cut only ½ of 1 per cent. Pressure on the tubing was 900 pounds, and on the casing, 925 pounds. Total depth is 4633, with casing cemented at 4625 ft.

Independent Exploration Co. is grading ground for Cymric No. 42 in Sec. 21-29s-21e. Oceanic No. 3 in Sec. 22 has been completed on the pump at 1351 ft. for an unestimated yield. No. 4 is standing with casing set at 1304 ft., immediately above the Amnicola sand. No. 5 is a location.

In Sec. 26-29s-21e, Standard Oil Co. has given the finishing touches to its Weston No. 4-26w at 3490 ft. for a yield of 230 barrels of 31.5 gravity oil daily. Gas output is 101,000 ft. a day. The Miocene at this location was topped at 3133 ft.

Terra Bella Try Staked

Gene Reid Exploration Co. has location staked for Murray No. 1 in Sec. 21-22s-27e in the Terra Bella area. The try, on a 650-acre lease, will try first for schist production. If this should fail, oil probably will be sought in the shallow zones around 600-800 ft., a source of production for Holly Oil Co. wells near by.

Dominion Test Location Staked

J. H. Maurer and Arthur C. Fisher have staked location for another test on its Jean lease in the Dominion area. Location for No. 4 has been staked in Sec. 15-26s-28e, northeast of No. 1, which was drilled to a total depth of 1075 ft. to a bottom in slate, top of which was placed at 1010 ft. This earlier try found the Vedder, between 795 and 940 ft., gray and barren.

New Producer At Salt Creek

Standard Oil Co. has completed its Anderson No. 48-17w in the Salt Creek area in Sec. 17-29s-21e, Kern County, for an initial output of 240 barrels of oil a day from 2860 ft. Total depth is 2860 ft. Top Carneros was placed at 2785 ft. S. P. No. 46-33w in Sec. 33-29s-21e is making hole in hard brown shale at 4200 ft.

Desert Try Rigging Up

Amapola Oil Corp. is rigging up to begin drilling its No. 1 exploratory venture in desert country on Sec. 8-6n-12w in the Lancaster area, Kern County.

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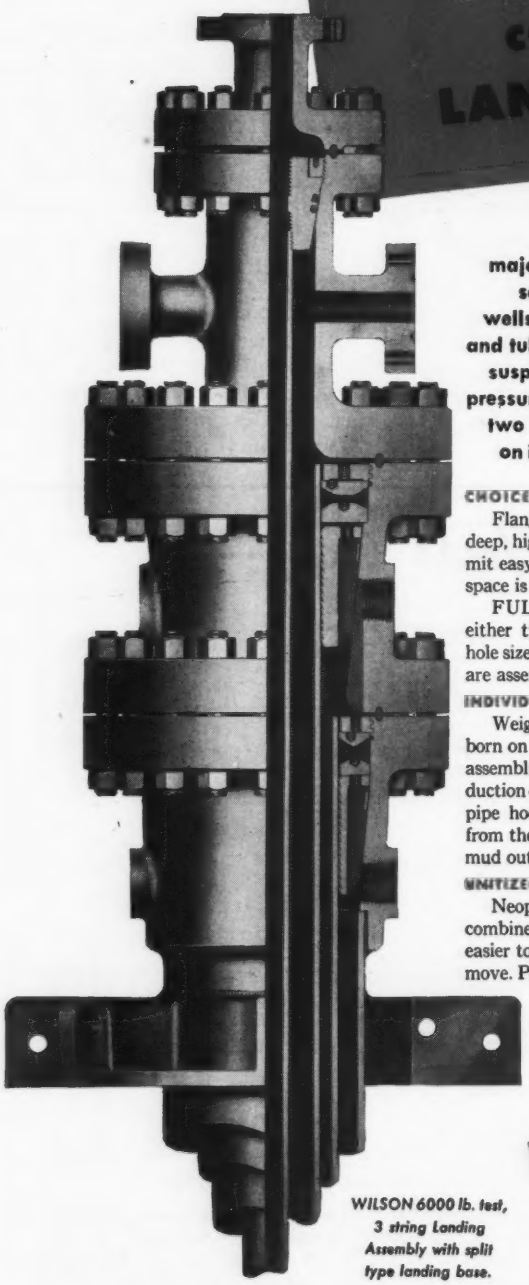

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McDonald Test Ends Oil Search

With bottom of the hole in gray sand at a depth of 3304 ft., Atlas Production Co. has quit the search for new oil with its U. S. anticline No. 1 test in Sec. 33-27s-19e in the McDonald Anticline area, Kern County.

Belridge Deep Test Drills On

Belridge Oil Co., No. 62-W-33 deep test in Sec. 33-28s-21e in the South Belridge area continues to drill steadily ahead at a depth of 12,780 ft. A "no-dope" well, speculation in unofficial quarters as to what may have been uncovered of oil interest to present depth ranges all the way from showings of promise to nothing of worth so far down deep. Richfield Oil Corp., meantime, is grading location for Berry No. 1 in Sec. 30-28s-21e. This job also is slated to go deep.

Devils Den Try Dormant

Barnsdall Oil Co.'s Bates No. 4 in Sec. 20-25s-19e in the Devils Den area is idle at 1520 ft., after fluid was bailed to bottom, with no rise in 15 hours. There is a chance the company may decide to acidize the hole zone between 1446 ft. and bottom. Bates No. 3 is idle at 2341 ft.

Kern Front Try Pulling

Liner is being pulled from Bender Oil Operations, Claire No. 2 test in Sec. 22-28s-28e in the Kern Front area, a prelude to redrilling the well, now bottomed at 2761 ft.

Mountain View Test Explores

On its Ten Eyck lease in Sec. 29-30s-29e in the Mountain View area, Cleveland Oil Co. is making normal drilling progress with its No. 1 exploratory project at 3650 ft. in sand and shale.

General Plans McKittrick Job

Ground is being graded for General Petroleum Corp.'s Hall-Baker No. 66-4 in Sec. 4-30s-21e on a 2000-acre lease in the West McKittrick area. W. T. Woodward and American Placers, Inc., Flickinger No. 1 in Sec. 36-30s-22e was last reported pumping about 7 barrels of 24 gravity oil a day from a plugged depth of 6556 ft.

Belridge Adds Pumping Well

Wilshire Oil Co. has finished at 1220 ft. its Lehman No. 3 in Sec. 18-28s-20e in the Belridge area, pumping 141 barrels a day gross, with a net of 21 barrels. Lehman No. 4 was given up at 1878 ft. in grey sand.

Western Gulf Starting Two

Western Gulf Oil Co. is ready to start work on its San Emigdio No. 3 in Sec. 1-11n-21w in the San Emigdio area, and its Di Giorgio No. 48-10 in Sec. 10-31s-29e in the Arvin area.

Mountain View Wildcat Rigging

Union Oil Co. is rigging up its Di Giorgio No. 71 in Sec. 3-31s-29e on wildcat territory south of the Mountain View field. The company recently abandoned its Reed No. 22-6 in Sec. 6-22s-26e in the Pixley area, Tulare County, at 3931 ft. in slate.

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Cat Canyon Adds Producer

Adding another substantial producing well to its lease in the Cat Canyon field, Palos Verdes Estates has finished P. C. No. 3 in Sec. 27-9n-33w at 6097 ft. for a yield of 535 barrels of 12.9 gravity crude oil daily with a slight cut.

Krieger Oil Co., Clearwater marketing, refining and producing organization, is planning to drill four wells on its holdings in the section.

Tip Top Try Spot Coring

On the Tip Top area of Ventura County, L. M. Lockhart is drilling ahead and spot coring with Macrate No. 1 in Sec. 27-4n-23w below 4500 ft. Trans-Cal Gas & Oil Corp., No. 1 in Sec. 12-4n-22w near Ojai is idle at a plugged depth of 1610 ft. Triangle Oil Co., No. 1 in the sec. tion, likewise, is idle at 1810 ft.

Montalvo Try Ready

Standard Oil Co. is grading location for McGrath No. 2, some 2100 ft. south and 100 ft. east of Corner No. 4, Rancho San Miguel in the Montalvo area, Ventura County. Location falls north and east of General Petroleum's abandoned McGrath No. 2 in Sec. 26-2n-23w.

Goleta Test Takes Cores

Having successfully recovered fish, Ohio Oil Co. is coring ahead at 2865 ft., with Prevedello No. 1 wildcat near Goleta in Sec. 1-4n-28w, Santa Barbara County.

Maine Prairie Project Drills

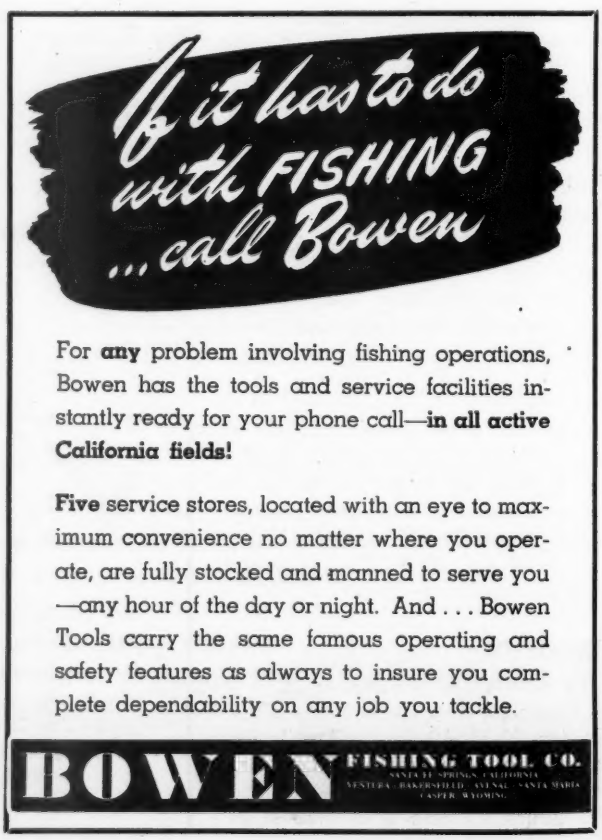
Amerada Petroleum Corp. is drilling its Crocker Estate No. 1 gas test in Sec. 25-6n-2e in the Maine Prairie area, Solano County, at 4540 ft. In the Cache Slough area, Church No. 3 is rigging up in Sec. 1-4n-2e. In the Thornton area in Sacramento and San Joaquin Counties, locations have been staked for Nicolaus No. 1 in Sec. 26-5n-5e, and Thornton Unit No. 2 in Sec. 28-5n-5e.

Santa Cruz Try Drills

Bean Hill, Ltd., Hilns No. 2, venturing for oil in Sec. 34-10s-1e in the Capitola area of Santa Cruz County, last was reported at a depth of 450 ft.

San Joaquin Try Drilling

In the McDonald Island area of San Joaquin County, M. R. M. Syndicate is drilling shale at 5035 ft., with Pacific States No. 2 test in Sec. 1-1n-4e. Electric log was run to 4364 ft. The top of the Markley shale is placed at 4040 ft.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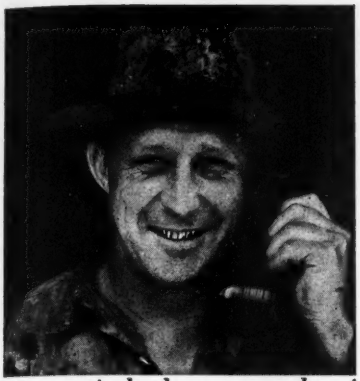

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Round Mountain Test Promising

Petrol Corp.'s Claire No. 4 exploratory venture in Sec. 13-28s-28e, two miles every direction from production already established in the Round Mountain area, last was reported coring at 2350 ft., with oil showings to date enough to warrant running of pipe.

Oceanic Plans Grapevine Try

Oceanic Oil Co., whose holdings in the Cymric field have been singularly successful as the scene of wells producing from the deep zones, is ready to start work on its K.C.L. No. 1 in Sec. 22-10n-20w, a try for oil in the Grapevine area. Foundation is in for Reserve Oil & Gas Corp., No. 1-A-21 in Sec. 21-11n-19w.

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Corcoran Try Drill Resuming

Four Star Oil Co. is cleaning out its Corcoran Irrigation District No. 1 in Sec. 24-20s-22e in the Corcoran area of Kings County, preparatory to resumption of drilling operations at present depth of 6050 ft.

Buena Vista Test Redrills

Seaboard Oil Co.'s SWUM-BVA No. 73-14 in Sec. 14-32s-25e near Buena Vista Lake is redrilling in hard shale at 11,215 ft. Continental Oil Co. is making progress at 6800 ft. in hard shale with BVA No. 1 in Sec. 8-32s-25e.

Kirby Hills Sites Located

Shell Oil Co. has locations staked for two new gas tries in the Kirby Hills area of Solano County, where more than a year ago the company uncovered new gas supplies in quantity. Wagenet No. 1 will drill in Sec. 24-4n-1w and Wagenet No. 2 in Sec. 19, Solano County.

Standard Oil Co.'s Kirby Community No. 2 in Sec. 36-4n-1w is drilling at 4300 ft.

Humboldt Test Rigging Derrick

W. C. M. C. Oil Co., Inc., is rigging derrick to start the drill in its Clark No. 1 wildcat test in Sec. 21-1s-2w in the Petrolia area of Humboldt County. In the Eureka area of the county, The Texas Co.'s Holmes-Eureka No. 3 in Sec. 22-3n-1w, a test primarily for oil, is drilling at 5275 ft.

Santa Maria Well Spuds In

Union Oil Co. has started the drill in its Union Sugar No. 26 in Sec. 19-10n-34w at Santa Maria Valley. Bradley Lands No. 2-13 has been completed at 5185 ft. for 59 barrels daily, cutting 24 per cent. Fleischer No. 9 is getting ready to start work in Sec. 31-10n-33w. Rothschild Oil Co., Kemp No. 4 in Sec. 31 is standing with casing cemented on bottom at 4325 ft.

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6500 ft. 5 9/16 Machine scarfed drill pipe. 3600 ft. 5 9/16 Drill pipe (uncut). Herley-Kelley, 3201 Pasadena Ave., Long Beach 7, Calif. Phone 425-23.

Patterson-Ballagh Introduces Effective Sucker Rod Wiper

The cut-away sketch and picture illustrate Patterson-Ballagh's most recent Sucker Rod Wiper development. This wiper was designed primarily to fit the needs of the well pullers themselves. It is light in weight, 29 pounds, and easy to handle.

This new model is made in two sizes, Duo-Wipe Style, with two wiping rubbers, and Quadra-Wipe Style, with four wiping rubbers, each size accommodating a Plain Head or Table Plate Head. The latter head style is for convenience of crews as a place to lay tools and elevators, ready to be picked up. Using the same tension principle employed by Patterson-Ballagh's Drill Pipe Wiper, it has many new advantages in the field.

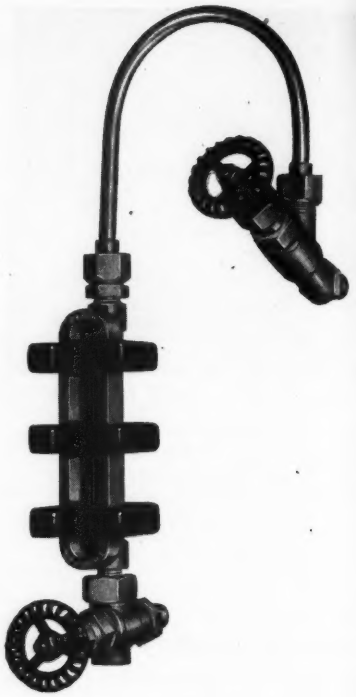
It wipes the coupling, the rod and the square clean of even the heaviest oil, using the same rubber to wipe 5/8", 3/4" 7/8" 1" and 1 1/4" rods as well as the pump. Only 4" over-all in height, it does not put the men out of position when they wrench rods. When couplings are pulled through at high speed it does not spray oil on men. Rubbers are sealed so that no oil is allowed to get on the floor or in the cellar of the rig, and they will stand enough pressure to get the oil to the tank or sump if the well makes a head. The Wiper can be adapted to wiping paraffin from the rods by merely opening the T below the Wiper so the paraffin has an outlet. It is convenient to use, as it comes mounted on a pony rod, which can be used to pick-up the rod string after taking down the polish rod. It is economical to use as the rubber replacements are very low.

In cooperation with local oil companies, an extensive study was made of the savings due to the use of wipers on production jobs and of Sucker Rod Wipers in particular. Operators, in field tests, reported time saved as much as 20 per cent on a pulling job; cost of cleaning portable hoist and mast more than offset the cost of maintaining wipers; fire hazard was reduced to zero, as there was no oil on the rig floor or in the cellar; injuries to the men working on well crews reduced 50 per cent; men on crews were much happier because they could leave job clean at the end of the day.

Water Gauge

The Model No. 50 R Reflex Water Gauge designed especially for boilers used in oil field operations has just been announced by the Jas. P. Marsh Corp., 2073 Southport Ave., Chicago 14, Illinois. A reflex type of gauge glass shows clearly and accurately the boiler water level at all heights and gives a definite contrast in color between the water in the column and the space above, the water appearing black while the space above appears silver.

The gauge is constructed of heavy reinforced parts made of brass; and special one-inch cast malleable iron clamps are designed to give maximum holding area on the body front part and gauge glass. Constructed with an ample factor of safety and conforming with A.S.M.E. federal and state requirements when used for pressures specified by their respective codes, the gauge is built for operating pressures up to 400



lb. W.S.P. A top angle valve and gauge body eliminate any water trap. This assures correct water level in the gauge at all times. A special double-annealed copper pipe assembly permits easy installation on any boiler. Glass changes are made easily and quickly by simply loosening three tripod-type clamps.

Another application for the gauge is for liquid level indications on pressure vessels. By connecting two or more gauges together, one above the other, any desired liquid level range can be clearly shown.

South Mountain Try Still Tests

One of the most interesting jobs in the Coastal district is D. D. Feldman's Richardson Estate No. 1 wildcat in Sec. 23-3n-21w in the South Mountain area of Ventura County. Drilled to a total depth of 4676 and subsequently plugged back to 4052 ft., the well at last reports was wet after being squeezed five times, with testing still continuing. Showings on the downward journey promised much in the way of production.

Location falls west of the South Mountain field proper and north of Freeman Fairfield's Converse No. 1.

THIS LAUGH OFF!!

A man was passing a neighborhood store and heard a terrific argument inside.

He went in to see what it was all about. He found only the proprietor there.

"Whom are you arguing with in here?" he asked. "You're all alone."

The proprietor said: "I get bored when I'm alone so I talk with myself."

"Well," said the man, "if you were talking to yourself why do you have to argue?"

"I can't stand a liar," the owner replied.

Sweet old lady (to golfer who had been searching for his ball for some time without success): "Would it be cheating if I told you where it was?"

Some girls are cold sober. Others are always cold.

A wealthy man, intent on matrimony, told his friend one day that he was 60 years old, and asked: "Would it be better if I told a young lady whom I'd like to marry that I'm only 50?"

"I'll be frank with you," his friend replied. "Your chances would be better if you'd tell her you were 75."

Last year I asked my best girl to marry me and she refused. I got even with her by marrying her mother. Then my father married the girl. Now what am I myself?

When I married the girl's mother, the girl became my daughter; and when my father married my daughter, she became my mother. Who am I?

My mother's mother, which is my wife, must be my grandmother, and I being my grandmother's husband, I am my own grandfather.

The visiting golfer took a mighty swing and missed the ball completely.

"Gad!" he said, "It's a good thing I found out early that this course is three inches lower than the one I usually play on."

Funeral Director, to aged mourner ——"How old are you, my friend?"

Aged Mourner—"I'll be 98 next month."

Funeral Director—"Hardly worth going home, is it?"

After hearing the evidence against a beautiful girl, charged with killing her husband, the jurors wanted to set her free but were afraid of arousing the wrath of their wives. Finally, one of the jurors who remembered that the dead man was an Elk came up with a bright idea and the prob lem was solved. They decided to recommend that the pretty defendant be fined $20 for "killing an Elk out of season."

He: "There's a fellow who is going places."

Haw: "Ambitious fellow, is he?"

He: "No, his wife is out of town."

Executive ability is classified as the art of convincing your wife that you hired the beautiful secretary on account of her experience.

She: "And when he kissed me I could feel his hands actually tremble."

Her: "How touching."

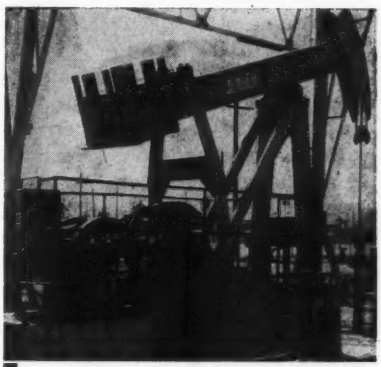
Singer: "How do you like my voice?"

Accompanist: "Lady, I've played the white keys; I've played the black keys; but you're the first one I ever saw that could sing in the cracks."

He who believes that "evening" has the same meaning as "night" should note the effect it has on a gown.

"I'd like a couple hard boiled eggs to take out," said the sporty shiek to the girl at the lunch counter.

"O. K." snapped back the blonde with a smile, but you'll have to wait. Me and Gertie don't get off till 9:30."



LIFT OIL AND ECONOMY . . .

The difference between oil at the bottom of the hole and in the tank is a piece of machinery; and for 26 years JENSEN has been building better machinery to lift your oil more economically.

Jensen has never been satisfied to "just do the job." Ask our customers—they'll tell you that a Jensen will do the job better—and for less money.

So, talk to owners, see us or write us and find out why Jensens will cut your pumping costs.

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THE OIL TOOL CORPORATION
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JENSEN BROTHERS MFG. CO.
14th and Pacific Streets
COFFEYVILLE, KANSAS, U. S. A.
EXPORT OFFICE, 50 Church St.
New York City

San Juan Oilfields

(Continued from Page 7)

which was drilled in April, 1910, to a depth of 500 feet.

The analysis is as follows:

"Color, dark green; gravity (Baume), 35.5 degrees; boiling point 240 degrees.

Naphtha — gasoline 12 per cent, volatile matter 3 per cent.

Kerosene, 44 (Baume); 110 degrees fire test.

Mineral seal, 300 degrees fire test.

Fuel oil, 42 per cent.

Loss, 3 per cent.

The oil contained about 2 per cent paraffin wax and 0.5 per cent asphaltum.

Owing to the close proximity of the San Juan oil field of San Juan County, Utah, to the San Juan Basin oil field of northwestern New Mexico, and the Black Mesa area of northeastern Arizona, the former being a heavy petroleum producer, and the latter a high potential, it would appear that further development of the Utah area, can be expected.

Washington Highlights

(Continued from Page 1)

thereafter.

These agencies, it was presumed, in determining how much future subsidy payments will be, will take into consideration the higher prices for crude oil since removal of the price ceiling to which the subsidies formerly were pegged.

When the new interdepartmental petroleum committee held its first meeting, Ralph K. Davies, guiding hand of the committee, explained that the purpose of the group was to assist the Interior Department in accomplishing better coordination of Government oil activities, as proposed by the Chief Executive.

Control of oil and gas leases on public lands, which has been under the jurisdiction of the Agricultural Department, has been moved over to the general land office of the Interior Department.

The War Assets Administration has received and opened 17 bids for purchase or lease of Big Inch and Little Big Inch pipe lines built by the Government at a combined cost approximately $145,000,000, as a war measure to expedite the flow of crude from the Mid-Continent area to the Eastern seaboard. Successful bidders are yet to be announced.

President Truman signed the McMahon atomic energy control bill, which places control of atomic developments in the hands of an all-civilian five-man commission. The measure gives the Army and Navy a comparatively minor role in the atomic energy program.

Government departments and agencies were told by Mr. Truman that "the present inflationary situation and the need for reducing the public debt make it imperative that expenditures be held at the lowest possible level.

* * *

A recent Los Angeles visitor was Harvey Davis of Crown Drilling Co. of Bakersfield. Tyler (Bud) Woodward of Camay Drilling Co., Los Angeles, is spending much time on the company's oil property in San Luis Obispo County. Camay has no less than a dozen strings of tools operating in different state oil sectors. In addition, a water well is being drilled for Bullock's new store at Palm Springs, and another well of the aqua variety on the Hawaiian Islands. Those Camay boys sure get around.

* * *

Any one seeking Bill Oliver, former oil producer, can find him at Maynard Boyce, Inc., transit advertising firm in the Los Angeles Chamber of Commerce Building. He is an account executive with the concern.

* * *

J. Barton (Bart) Hutchins has returned to Los Angeles after an inspection trip of the Petrol Corp.'s wildcat well located two miles from production in all directions at Round Mountain. Present indications are that Petrol has uncovered a discovery of some commercial worth. Before joining the Petrol organization about a year ago, Bart was with the Oil Producers Agency. Earlier, he was with Barnsdall. Bart's father was a prominent mining man, with holdings in the United States and Latin-American countries. Incidentally, Bert first saw the light of day in a sleepy little mining town south of the border.

Earnings—A Function of Catalyst Activity

(Continued from Page 15)

References:

[1] Alexander and Shimp; Laboratory Method of Determining the Activity of Cracking Catalyst; National Petroleum News, August 2, 1944.

[2] Noll, Bergstrom and Holdon: New Integral T.C.C. Unit Makes Catalytic Cracking Available to Small Refiners; Oil and Gas Journal, Vol. 44, No. 48, April 6, 1946.

Author's Note

Considerable confusion exists with regards to the terms "catalyst-make-up" and "catalyst loss." "Catalyst loss" in this paper is taken to mean that quantity of catalyst which is mechanically lost from the system. "Catalyst make-up" is taken to mean the sum total of catalyst added to the system to make up mechanical losses plus catalyst added to the system (balanced by physical catalyst withdrawal from the system) to maintain optimum catalyst activity. For example, TCC units will operate on clay catalyst with a mechanical loss of 0.1 pounds per barrel. This paper shows, however, that to maintain optimum catalyst activity from the standpoint of economics, equilibrium catalyst should be withdrawn from the system and replaced with additional fresh make-up. For the example taken in this paper, the total optimum catalyst replacement is indicated to be 0.8 pounds per barrel for maximum profit.

Severns Drilling Co. (Clayton Severns and Ashley DeWitt) have been let contract by Shell to drill Braille No. 1 in the Newhall area. The test will be punched down on a lease from the Braille Institute, the famed organization of the blind. In the event of successful completion of a commercial producer, the sightless are likely to benefit handsomely.

* * *

After making his headquarters for more than 10 years in the Los Angeles Subway Terminal Building, Richard Miesse now maintains headquarters at Santa Monica. Walt Parker and Fred Roberts, General Drilling Co. heads, also have quit downtown Los Angeles. They are presently ensconced at 311 So. Vermont Ave., having moved from the Citizens National Bank Building.